

# The Mining Journal

## RAILWAY AND COMMERCIAL GAZETTE

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

[The MINING JOURNAL is Registered at the General Post Office as a Newspaper, and for Transmission Abroad.]

No. 2245.—Vol. XLVIII.

LONDON, SATURDAY, AUGUST 31, 1878.

[WITH SUPPLEMENT.] {PRICE ..... SIXPENCE.  
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50 Chontales, 13s. 3d. 20 Glenroy, 15s. 25 Rookhope, 16s. 3d.

20 Colorado, 25s. 20 Gorseod & Mer., £2 3/4. 150 Rossa Grande, 2s. 3d.

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10 Don Pedro, 12s. 15 Llannwrst. 5 Leadhills, £2 16s. 3d.

5 D'Esby Con., £8 3/4. 15 Llannwrst. 5 Van, £18 1/2.

1 D'Esby Mount, £45. 20 Morfada, 12s. 6d. 5 West Chiverton, £3 3/4.

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East Van, £3 3/4. Van. United Mexican. Eberhardt, £4.

Grogwinlon. Wye Valley, 28s. 9d. Flagstaff, 10s. 6d.

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Mining Journal is published every Wednesday evening, containing "Notes and

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Argentine ..... 3s. ... 5s. New Zealand Kapanaga ..... 1 ... 1 1/4

Bodidris ..... £ 1 1/2 .. £ 1 1/4 Parys Mountain ..... 6s. ... 8s.

Cambrian ..... 3 ... 3 1/4 Patey Bridge ..... 4 ... 4 1/4

Colorado ..... 4 ... 4 1/4 Plympton ..... 3s. ... 5s.

Chontales ..... 11s. ... 13s. 1/2 Richmond ..... 1s. 6d. ... 2s. 6d.

Clementine ..... 1 1/2 ... 1 1/4 Roman Gravel ..... 7 1/2 ... 7 1/4

Denbighshire ..... 1 1/2 ... 1 1/4 Rookhope ..... 12s. 6d. ... 15s.

Devon Great Consols... 2 ... 2 1/4 South Chiverton ..... 10 1/2 ... 11

Don Pedro ..... 9s. ... 11s. South Frances ..... 3 1/4 ... 4

Eberhardt ..... 4 ... 4 1/4 Tecoma ..... 2s. ... 4s.

East Caradon ..... 8s. ... 10s. Tyn-y-Fron ..... 1 1/2 ... 1 1/4

East Van ..... 3 ... 3 1/4 Tankerville ..... 3 1/4 ... 3 1/2

Flagstaff ..... 10s. ... 12s. 2 1/2 Tankerville ..... 3 1/4 ... 3 1/2

Frontino ..... 2 1/2 ... 2 1/2 Tancroft ..... 18 ... 19

Glenroy ..... 10s. ... 12s. 2 1/2 Van Chiverton ..... 5 ... 7

Glyn ..... 9s. ... 11s. West Chiverton ..... 10s. ... 12s. 6d.

Gorseod and Merilyn... 2 1/4 ... 2 1/2 West Godolphin ..... 6 ... 8

Grogwinlon ..... 2 1/4 ... 2 1/2 West Wye Valley ..... 2 ... 2 1/2

Great Laxey ..... 18 1/2 ... 19 W. Grenville ..... 1 1/2 ... 2

Hultafall ..... 2 1/4 ... 3 Wye Valley ..... 1 1/2 ... 1 1/4

Last Chance ..... 3 ... 3 Yorke Peninsula ..... 5s. ... 6s.

Leadhills ..... 2 1/4 ... 3

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## Lectures on Practical Mining in Germany.

## CLAUSTHAL MINING SCHOOL NOTES.\*—No. LXXXV.

BY J. CLARK JEFFERSON, A.R.S.M., WH. SC.,  
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## SECTION V.

The sinking of shafts through very quick ground offers great difficulties, not only on account of the impossibility of fixing bearing stempels, and the necessity of closing well the joints between the piles, but also on account of the necessity of covering the bottom of the shaft, and the difficulty of dealing with the large quantity of water usually met with under such circumstances.

The closing of the bottom of a shaft whilst sinking may be effected in three ways:—1. By covering the bottom with closing boards, analogous to that of the end of a drift or level, as already described.—2. By closing the bottom with a large plate or shield, with suitable opening or openings for removing the ground, corresponding to the use of Brunel's shield when driving the Thames Tunnel.—3. By wainscoting or wedging the bottom of the shaft, analogous to the use of wedges in the face of a level, introduced by M. Simon and M. Duveau.

1.—In the first case, the bottom is usually covered up by laying stout planks across the shaft, parallel to the shorter sides. Where the ground is very quick, and in a fine state of division, it may be necessary to close the joints between the boards as well. This is usually effected by placing a layer of straw beneath the planks, which whilst allowing the water to pass through prevents the sand and earth from rising also. The closing boards are held down in position generally in one of two ways. Either a long plank on each of the longer sides is laid over the ends of the shorter cross planks, close to the longer sides of the shaft, the whole being held down by two or three struts placed between the longitudinal plank and the longitudinal bearers of the last crib or frame. It is much more convenient, however, to dispense with the longitudinal planks, and to hold each of the closing boards down by means of two props placed one at each end between the plank and the longitudinal bearers of the last crib or frame. Owing to the divergence of the piles the space required to be covered by the closing boards as each set of spilling approaches completion becomes slightly greater. Where the ground is very quick and fine, so that it would penetrate through slight openings, it will be necessary to resort to the same expedient we have before mentioned when driving through quick ground—that is, the boards are made somewhat longer than half the width of the shaft, and overlap in the centre, where they are held down by props, placed under a longitudinal bearer, temporarily fixed for the purpose across the centre of the shaft. When the bottom of the shaft has been so far drained by means of the sump (to which we shall presently refer) as to render it feasible, one of the closing boards is loosened, the ground beneath for a greater or less depth excavated, and the board replaced and strutted down. According to the advance the original strut must be replaced by a longer one. When the whole of the boards have thus been taken up and advanced the piles are advanced forward the same distance, after which the closing boards are again successively removed for excavation and so on, till the advance is so great as to require the insertion of one of the cribs.

2.—The second method of covering the bottom of the shaft by means of a single plate, with suitable openings in the centre and at the sides or corners, which can be closed at pleasure, and through which the ground is excavated, or through which in consequence of its loose nature the soil forces itself, notwithstanding its apparent ease and simplicity, can be used only where the ground is so quick and homogeneous in its character that when a space in the neighbourhood of the openings has been excavated the pressure of the plate on those portions beneath the plate, and which are so far distant from the openings that they cannot be got at, that these portions of the ground will be caused to flow into the excavated space, and the horizontal surface restored, accompanied by a slight lowering of the plate—the bottom of the shaft. It is, however, comparatively rare in actual practice that cases are met with favourable for the use of this method.

3.—The third method of closing the bottom of the shaft when sinking through quick ground requires, like the last, that the strata be homogeneous and fine, without the presence of any large pebbles or stones. This method was carried out in sinking the shafts of the Concordia Colliery, near Nachterstedt, and the Christopher Friedrich Colliery, near Hornhausen, in the brown coal field of Saxony. This method, called block wedging, consists in covering the bottom of the shaft with rectangular blocks of wood, from 10 in. to 12 in. square. A 3-in. hole is bored through the centre of the block, the hole is widened on the under side conically to nearly the full width of the block of wood; the hole is thus funnel shaped, with the wide end on the under side. To prevent the blocks from splitting as they are being rammed down they are provided both on the upper and under side with rectangular iron rings. The last row of blocks, close to the piles, are cut slightly inclined on one side, to correspond to the divergence of the piles against which the last row are tightly pressed by means of wedges inserted between the last two rows of blocks. The centre block in the bottom of the shaft is solid, and on this rests the snore-pipe of the pumps. The blocks are driven or stamped down successively 4 in. or 5 in. in advance of each other, beginning at the centre and proceeding to the outside. The water and fine soil are thus forced up through the holes, which can at any time be readily stopped up by means of straw, &c. To prevent the blocks from being forced upwards cross bearers are placed across the shaft parallel to the rows of blocks, which are held down by props or struts placed between them and the bearers.

We have already indicated in the first method of covering the bottom of a shaft with boards the great advantage—in fact almost necessity—of at least a provisional draining of the ground in the immediate neighbourhood of the bottom of the shaft. Where, as in the last described method, a sort of sump is formed in the centre of the shaft bottom itself, provision is at once made for draining the bottom of the shaft. By the first described method with closing boards an opening must be left in the bottom of the shaft where a sump can be formed. The sump is then formed in the following manner:—A series of piles are driven down close against each other, so that their upper ends project only from 12 in. to 18 in. above the closing boards, forming a hollow box, which encloses a portion of the ground. The soil within the box is then excavated to within 18 in. to 24 in. above the bottom end of the piles. The water filters through the boards into the sump thus formed, which thus enables the ground to be drained some distance in advance of the shaft bottom. While sinking the shaft of the Karl Colliery (brown coal), near Volpke, in Saxony, the sump was formed by driving down wrought-iron piles, 10 feet in length, and arranged in a circle. The cylindrical space thus enclosed was excavated, wrought-iron rings or hoops, 3 ft. in diameter, being driven down on the inside of the piles, thus supporting them against the pressure of the soil. All the open spaces between the piles and the bottom of the sump were closed with straw, so as to filter the water, and to render it clear enough to pass through pumps.

In order that the sump shall remain constantly in the centre of the shaft it is necessary that the piles forming the lining of the sump shall be driven down in a perfectly vertical direction. This is a matter of some considerable difficulty, especially where the ground to be passed through contains large blocks or boulders of stone, against which during the driving down of the piles the latter would have a tendency to glide, being thus forced out of a vertical direction. To obviate this it is sometimes usual to drive down

long round piles in the corners, which are bedded some considerable distance in advance of the bottom of sump piles, and project so far above the upper end of the sump that they can be firmly wedged against the permanent shaft timbering.

A modification, and at the same time a simplification, of the above described method of shaft spilling is that in which the piles are driven down in a vertical, and not in an inclined, direction, and which on this account is usually denominated VERTICAL SPILLING. This method has been pretty extensively used in some of the brown coal districts of Germany (notably in Saxony), Russia, and in the North of England. This method has the chief disadvantage that if the thickness of the quick ground is considerable, the section of the shaft is too greatly diminished. It is on this account that the piles are made as long as possible, varying from 13 ft. to 17 ft. in length, since with every additional set of piles the section of the shaft is diminished, and if this is too often repeated the section of the shaft will become too small for after use.

This method was employed in the sinking of the shafts for the Rhine and Ruhr Colliery, near Ruhrort. Where the expected thickness of the quick ground was under 15 ft. the piles were taken 18 ft. in length, in the hope of penetrating through the quick strata, with one set of piles; where, however, the thickness of the strata rendered the use of two or three sets of piles necessary, the piles were only made 12 ft. in length, in order to obviate the liability to bending inwards when the piles were taken of much greater length. The thickness of the piles varied from 6 to 8 in. square, the lower end of the pile is sharpened sometimes on one side only and sometimes on both, in which case the inclination of the inner side to the vertical is to that of the outer side as 3 to 1, a proportion which has been found most favourable for preserving the vertical direction of the piles during their descent. The upper ends of the piles are provided with iron rings to prevent their splitting when being rammed down. The sides of the piles where they abutted against each other were carefully planed, and provided with grooves, in which a feather was inserted. In some cases the piles were made somewhat thinner and inserted in two rows, the joints of the one set covering those of the other set. This arrangement is said to have the advantage, that since only one side of each pile is exposed to the friction of the ground, the frictional resistance encountered during the driving in of a single pile is considerably lessened, since the other three sides which abut against piles have been carefully sawn and planed. The piles are driven down either with sledge hammers (20 lbs.) or by means of an ordinary pile driver weighing 4 or 5 cwt., having a fall of about 5 ft. As a rule, the piles cannot be driven in their whole length before the ground is excavated, as generally the piles are driven down successively from 3 to 4 ft. at a time, the excavation of the ground proceeds correspondingly.

In order to preserve the planks or piles in a vertical direction whilst being driven down, a temporary guide frame is inserted at the lower part of the shaft, this frame being attached to the upper parts of the timbering. When the piles have been driven down some 4 or 5 ft. and the ground excavated, a wooden crib of 6 in. to 8 in. bars are placed inside to strengthen the lining, and to prevent the piles being forced inwards. Greenwell describes the sinking of a shaft through 45 ft. of quick ground, and in order to allow of the diminution of the diameter of the shaft, it was commenced with a diameter of 30 ft. The piles are nailed to the inside of several wooden cribs of 6 in. square timbering placed about 3 in. apart, the piles being, however, only 2 in. in thickness and 14 ft. in length. The piles and cribs are driven down together by means of sledge hammers; the ground thus enclosed is excavated, and a second set of piles are then inserted, which diminish the shaft 18 in. diameter. Eight sets of spilling were required before solid ground was reached, when the diameter had become reduced to 14½ ft.; in this case the spilling was only temporary, the shaft being afterwards built up in brickwork, the space between the brick lining and the wooden spilling being filled up carefully with clay, &c.

A special application of this method of vertical spilling is described in Lotner-Serlo's Manual of Mining. At the Friedrike Crown Coal Colliery near Welsleben, the shaft had to be sunk through 20 ft. of quicksand, the dimensions of the shaft being 10 ft. long by 8 ft. 4 in. wide. On reaching the quicksand bed this was penetrated 4 ft. 3 in. long by 2 ft. wide by means of two sets of vertical pilings, the lower ends of the piles being buried 7 in. in the underlying bed of clay. This is enlarged successively to 6 ft., 8 ft., and 10 ft. long, by 4 ft., 6 ft., and 8 ft. 4 in. in width. The surface is lowered successively 6 in. at a time, the upper ends of the piles being sawn off by that amount, and the frame supporting the heads of the piles is lowered each time by that amount, so that the upper ends of the piles are always supported by a frame; of course it will be understood that before each successive enlargement piles are driven down 1 ft. distant all round from the inner sets of piles.

Another modification of the lining of shafts by means of piles is that which is often to be found in the shafts of the Russian Crown coal mines, and called "Schutzenszimmering." This description of timbering can only be employed where the thickness of the deposits does not amount to much more than 70 ft., and, consequently, where the thickness of the quick ground has been definitely ascertained. In the Russian coal mines the upper part of these shafts are generally sunk and lined with the so-called box-timbering (German, Umgangs Zimmerung). In the corners of the shaft, and also on each side in the line of the partition between the pulling and travelling divisions of the shafts, long piles from 6 in. to 8 in. square and from 2 ft. to 3 ft. longer than the expected thickness of the quick ground, are driven down from 2 ft. to 2 ft. 6 in. into the solid ground beneath. It is of the greatest importance to the success of this kind of timbering that the piles should be driven down perfectly vertical, and it is, therefore, necessary, to fix guides in the upper timbering, in which the piles can slide whilst being rammed down. The piles are not only sawn but planed, and in the middle of those sides not in contact with the sides of the shaft grooves 1½ in. to 2 in. wide, and 1½ to 2 in. deep are cut. When the piles have been driven down boards from 1½ in. to 2 in. thick and 12 in. deep are inserted, with the ends fitting in the groove. The planks are driven down as far as convenient into the ground, and the enclosed soil is removed. By means of bars, picks, &c., it is attempted to scrape away as much ground as possible beneath the planks, which are then driven still further down, the ground again enclosed removed, and the attempts to facilitate the driving down of the piles again renewed. This process is repeated until the quick ground has been sunk through. Of course it will be understood that fresh planks are inserted in the grooves and driven down after, and close up to the former ones. Sometimes the partition between the winding and travelling divisions of the shaft is made by inserting similar planks in grooves on the inner side of the two middle piles. Where the pressure is considerable the piles may be held apart by means of props inclined alternately in one direction and then in the other, or by horizontal struts. It will be noticed that this arrangement lessens the length and breadth of the shaft by 12 in. to 18 in. In order to close all openings more perfectly the planks fit each other with groove and feather.

AMERICAN FILES.—Probably few tools are of more importance to the working engineer, or, indeed, to mechanics generally, than a good file, and we have hitherto been accustomed to consider that Sheffield was the only place from which a really reliable file could be obtained. It appears, however, that in this as in many other branches of industry, the Americans are rapidly making themselves independent of all other nations, for the Nicholson File Company of Providence, Rhode Island, are now sending into the market files and rasps of all the forms usually manufactured, as well as many dozens of seldom used shapes, and all of a quality which leaves nothing to be desired. With a view to facilitate the selection of characters and sizes of files exactly suited to the particular purpose for which they are required, the company have just published a descriptive and illustrated "Treatise on Files and Rasps," which will prove of great utility to users, since not only are the newest and most approved special tools described, but some of their principal uses are given. The treatise forms a handsome quarto volume which is so profusely illustrated that the file or rasp suited to one's

particular purpose can be more readily found than by looking out the files themselves. The Nicholson File Company has now been in existence for upwards of 14 years, during which time they have succeeded in removing the prejudices formerly existing in favour of hand-made files. The plant of the company is now regarded as the most complete for the purpose of any in the world, and the very latest, and, perhaps, at no distant day, to be an important element in the manufacture of files, is now being experimented on by the company, and its value to files in general determined. It consists of a patent process of impinging upon the teeth of finished files a gritty liquid in such a manner as shall whet the teeth to a degree of sharpness never before attainable. The advantages, when applied to horse, wood, cabinet, and shoe-rasps, or upon files for wood, brass, bronze, or other soft material, will, it is believed, be readily apparent to the mechanic; but the benefit to be derived from a general application of the process to all files will be determined by further experience. The volume throughout is well worth careful attention.

## IRON AND STEEL AT THE PARIS EXHIBITION.

The question is often and very naturally asked by those interested in the subject, "How does England compare with other nations represented at the Paris Exhibition?" To that question, in so far as iron and steel are concerned, only one answer can be returned. England is not represented in a manner worthy of her high prestige and her manufacturing resources. It must not, however, be supposed that this is due to any absolute incapacity for making a better show. On the contrary, it looks rather as if many of the leading English firms had been so satisfied with laurels already won in universal competition as to be careless about adding to their already well-earned reputations, forgetful of the fact that in the infancy of commercial and industrial as well as in the dawn of political life, nations put forth energies that are rarely attempted, because deemed unnecessary, in days of full maturity. And yet England is not without some claims to distinction, even in the very imperfect show she makes in the Paris Exhibition of 1878. Ever the leader in metallurgical improvements, she has once again come forward with novelties both in processes and in appliances that may be destined to lead up to greater results than are yet dreamt of by those who are responsible for them. At no previous Exhibition has there been a finer display of the particular metal with which the name of Sir Joseph Whitworth is associated. It is now many years since Sir Joseph took up the question of the manufacture of steel of great tenacity, with the view of giving increased security to his guns in the discharge of shot and shell at high velocities. He accomplished this object by casting his steel gun barrels under compression, applying hydraulic pressure to the melted mass until it became solidified, the ingot being removed when the metal became set. In this process the greatest difficulty with which Sir Joseph has had to contend has been that of obtaining a metal cylinder of sufficient density to sustain the pressure; but the exhibits shown at the Paris Exhibition demonstrate that this difficulty must have been overcome. These exhibits include an air vessel for torpedoes, made to withstand a proof pressure of 1500 lb. per square inch; a screw propeller shaft forging, made from a hoop of fluid compressed steel and forged hollow, the weight being less than two-thirds that of a wrought-iron shaft, while the length is 33 ft. 7 in., the outside diameter 17½ in., and the diameter of the bore 11½ in.; a cylinder lining for a marine engine made from a hoop of fluid-compressed steel and enlarged to size by being forged, the inside diameter being 77 9/8 in., the thickness 1½ in., and the length 59 in.; a section of a gun bore, showing the Whitworth polygonal form of rifling; shells made of the same metal, alongside the plates which they have penetrated; and finally, a shell, fired at Gavre, without internal charge, from a Whitworth 12 in. 85 ton gun, and armour 15½ in. thick. These exhibits are of exceptional interest at the present time, as illustrating the most recent development in this country of steel suitable for naval warfare. Only a few weeks ago, in the House of Lords, the Duke of Somerset not only testified that the Whitworth shells carried double the charge of the Woolwich shells, but expressed his belief that a 50 or 60 ton gun made of the Whitworth metal would be able to do all that can now be done by an 80 or 100 ton gun. It is, moreover, of importance, as bearing upon the experiments which the Lords of the Admiralty have recently made with Whitworth and other metals. The plates which Sir Joseph has recently produced from fluid-compressed steel, built up in hexagonal sections, each composed of a series of concentric rings round a central circular disc, are regarded by many as the plates of the future, inasmuch as they meet the only weakness of the steel—its liability to crack. The specimens of ingot steel produced, with and without compression, which Sir Joseph shows at Paris for the sake of comparison, must prove even to the uninitiated how vastly superior is the metal from which the hydraulic press has eliminated all the air bubbles, and squeezed into a dense and compact mass; but the commercial results of this process are less apparent, and much of its success in the future will depend upon the cost at which it can be produced in competition with the other metals that are now seeking the first place in the race for pre-eminence.

Of both Bessemer and Siemens steel English manufacturers show to a considerable extent; but the collection of no particular firm is so specially notable as to call for pre-eminence. At previous Exhibitions the world has had abundant means of ascertaining how far Bessemer steel could be adapted for the ordinary purposes of commerce, and it has not fallen to the lot of English firms in this Exhibition to shed much new light on this matter. It may, indeed, be said that, considering the growing importance of steel and its rapid displacement of iron, the degree of practical information furnished by English exhibitors as to the relative qualities of the two metals is scarcely creditable to those who have been so largely instrumental in bringing about that transition, and this remark applies with special emphasis to the display made by the leading firm in the Siemens steel trade. The Landore Siemens Steel Company, of which Dr. Siemens, the inventor of the process that bears his name, is chairman, show in an out-of-the-way corner, outside the main Exhibition building, some specimens of iron and steel manufactured direct from the ore, a few engineers' and other forgings, steel for shipbuilding in the form of plates, angles, and beams, and some rails, tyres, and axles. But the collection is extremely unsatisfactory, and such as cannot for a moment be regarded as the utmost of which the company is capable. This fact is singularly unfortunate, in view of the great prominence that has recently been accorded to the steel with which the name of the distinguished President of the Iron and Steel Institute is associated. Ten years ago, less than 50,000 tons per annum of Siemens steel were made in this country. In 1873 the quantity manufactured was 77,500 tons; and last year it was not less than 137,000 tons. In the United States the production of Siemens steel advanced from 3500 tons in 1873 to 21,490 tons in 1878. Within the last few months Siemens steel has been adopted both by Lloyd's and by the Admiralty for shipbuilding, and it is now found to be more suitable than either malleable iron or Bessemer steel for certain other purposes in respect of which a large consumption may be anticipated. The Siemens steel trade is, in short, an entirely new industry, apparently capable of immense development, and, likely, because of the economy and simplicity of the process of manufacture, to bring about many changes in the existing order of metallurgical affairs. But of these facts, we regret to add, the Paris Exhibition fails to furnish anything like adequate proof, and those, therefore, who desire to acquaint themselves with the position and prospects of this industry must have recourse to other means of information.

The Bessemer steel trade, which had its origin in England rather more than 20 years ago, still continues to be followed more largely in that country than any other. Of about 2,000,000 tons of Bessemer steel now annually produced throughout the world England furnishes fully 750,000 tons; the United States, 625,000 tons; France, 261,874 tons; and Germany, 242,261 tons. No industry in modern times has sprung so suddenly into importance, nor has any other caused greater changes in the way of setting aside an old and introducing a new order. Bessemer steel has ruined the iron trade. It has made puddling and the puddling furnace almost a thing of the

\* Being Notes on a Course of Lectures on Mining, delivered by Herr Berggrath Dr. von Gronow, Director of the Royal Bergakademie, Clausthal, The Harz, North Germany.



past, and there are not wanting signs and tokens that it will in course of no very long time usurp the place of other metallurgical appliances. To this industry it is due that thousands of furnaces in Wales and Cleveland have been laid waste and tens of thousands of workmen either thrown idle or transferred to other occupations. The age of iron has become the age of steel. A new departure, long threatened and greatly feared, has been actually accomplished. Naturally, then, those who have an interest in these things—and who has not?—would, above all things, desire to become acquainted through the Exhibition with all the conditions and qualities that have brought to pass the transformation we have indicated. England, it must be confessed, has done much less than she might to elucidate this enquiry. Some of the leading Sheffield firms have put in a highly creditable appearance with collections of soft, double shear, pen, and other special kinds of steel; but the leading Bessemer steel manufacturing firms are conspicuous by their absence. It is true that the enterprising firm of Bolckow, Vaughan, and Co. exhibit samples of all the raw materials used by them in their new steel works at Aston, as well as the finished product; but the great firms of Dowlais and Barrow, not to mention many smaller, but still extensive concerns, have kept themselves aloof. The consequence is that neither the Bessemer steel trade nor its most important centres are represented as they ought to be, causing not only grievous error on the part of those who judge of us by our visible fruits, but greatly impairing the value of the display for commercial and technological purposes. With all these qualifications, however, we are bound to accord a meed of credit to Messrs. Brown, Bailey, and Dixon, and Messrs. William Jessop and Sons, of Sheffield, who have successfully exerted themselves to uphold the lustre of English industry in their respective spheres.

Of iron in its various forms and combinations the most interesting English collection is undoubtedly that brought together by the two trade associations of the North of England, and grouped in a large case, in a prominent situation, adjacent to the Prince of Wales's pavilion. This series of exhibits illustrates not only the raw materials, but the finished products of Cleveland as well, starting *ab initio* with a pillar of the oolitic or lias ore of that district, 10 ft. in height and weighing 3½ tons,—the exact quantity required to produce 1 ton of pig-iron—24 cwt. of Durham coke, and 12 cwt. of Weardale limestone. A few samples of pig iron and of ornamental castings produced therefrom are also included in this collection, which seems to be rather too much of a family arrangement to be as instructive and suggestive as it should have been. Cleveland has not now the same monopoly of cheap pig-iron that it enjoyed 20 years ago. The Paris Exhibition brings home to the cheapest iron-making district in England the fact that on the Moselle they can make pig-iron cheaper still; and in the face of such competition it would have been more serviceable to all concerned if the Cleveland iron makers had shown not only what they did in comparison with other countries or districts, but what they were capable of doing in competition with each other. It is true that the Cleveland iron makers are all mainly dependent on the same supplies of raw material, but from the same material many different qualities of product are yielded even in Cleveland, each firm having a brand of its own, which is either better or worse, or believed to be better or worse, than those of its neighbours. Any deficiencies apparent on this score were somewhat atoned for by the very interesting pamphlet of Mr. I. Lowthian Bell, M.P., prepared for the purpose of illustrating the growth and resources of the Cleveland district, and to which we would refer those who may desire to make a more extended acquaintance with the largest iron producing district in the world. In finished iron the only North of England exhibits calling for mention are those shown by Messrs. Hopkins, Gilkes, and Co. Through evil and through good report, in spite of many failures and discouragements, this firm has continued steadily to persevere with the Danks system of rotary puddling, until by its means they have not only succeeded in producing but in establishing a considerable reputation for a special quality of metal suitable for all the purposes to which the Yorkshire and Staffordshire iron is now applied. The Danks iron shown by Messrs. Hopkins, Gilkes, and Co. will stand the minutest inspection, showing, as it does, a fine close tough fibre, and possessing great tensile strength; while the successful prosecution of the manufacture of such iron would seem to open up another vista of hope and promise for the now discredited system of mechanical puddling, unless indeed, as some authorities believe, puddling has come to be an altogether effete industry.

Little remains to be said concerning the exhibits of iron and steel in the English section. Earl Granville shows numerous specimens of ores and metal from the Shelton Bar Ironworks at Stoke; the Lilleshall Company exhibit 13 different specimens of hot and cold blast pig-iron; the Snedhill Iron Company are exhibitors of puddled wire rods, treble best boiler-plates, link-chains, and rivets; and Harrison, Ainslie, and Co. show an interesting collection of ores from the Furness district, and samples of charcoal pig metal, of which they are now the only makers in England. From another part of Lancashire the Wigan Coal and Iron Company show specimens of the ores used in the manufacture of their Kirkless Hall brand, and samples of pig-iron made either entirely from Algerian ores or from a mixture of English and Elban hematite. But neither in these nor in the other exhibits which we have failed to enumerate does England add to her reputation or advance her interests in the ever-widening arena of industrial competition. Judged from the stand-point of the Paris Exhibition, the least that can be said is that if England has held her own, she has done so by such a narrow margin that the judicious must view the result with far more of apprehension than of confidence and approval.—*Times*.

**THE MANUFACTURE OF IRON IN INDIA.**—The latest effort of English enterprise in connection with the manufacture of iron in India is (says the Pioneer) the establishment of the Bengal Ironworks Company. Formed in the year 1874, when iron in England commanded prices unprecedentedly high, and nearly three times those now prevailing, this company selected for its operations a much more favourable situation. Purchasing a property on the Barrakur branch of the East Indian Railway, central to the best collieries of the Bengal coal field, and surrounded by abundant and easily got supplies of good ironstone, the Bengal Ironworks Company there established its works, and faced boldly the troubles and difficulties inseparable from the establishment of a new industry in India. These have been overcome, and the out turn of cast-iron from the furnace now working has, during the past nine months, been highly satisfactory. But while we congratulate the company on this satisfactory result, we cannot accept the iron industry as fully established in India till the manufacture of wrought-iron is added to the production of cast-iron and finished castings. And we would urge the enterprising capitalists who have so boldly put down the money for the construction of the works now in existence, to take courage by their present success and enlarge their sphere of action, to erect puddling furnaces, establish rolling-mills, and to complete their undertaking in the thorough way necessary to commercial success. And if, as is possible in the face of the present prices of iron in England, and from the want of capital in Calcutta, there may be difficulties in raising the further funds necessary for the works above indicated, we venture to think that the early development of iron manufacture in India should command the deepest interest of the Indian Government. Our belief in the importance of the success of the industry is so strong, and our confidence is so great in the improved condition of Indian finance which will result from the growth of this and similar industries within the empire, that we earnestly recommend the subject to the consideration and fostering care of the Government. If the capitalists of Calcutta cannot prosecute their undertaking, we would even go so far as to recommend that the Government should either purchase the works of the present company and complete them, or that they should establish malleable iron works of their own in connection with the works of the company, or that they should assist the company by loans to the full development of its works. It would be beyond our province to indicate which of these alternatives is the most desirable; it is, however, our firm belief that iron cannot continue to be sold at its present price in England, and that when the price rises, and when exchange to England becomes more unfavourable to this country (results not unlikely to follow

peace and prosperity in Europe), it will then be of paramount importance to have local ironworks to turn to for the supply of Indian wants.

### THE WORKS OF MESSRS. ROBEY AND CO., LINCOLN.

NORTH STAFFORDSHIRE INSTITUTE OF MINING AND MECHANICAL ENGINEERS.

The second excursion of the season in connection with this Institute has taken place this week. The excursionists proceeded on Monday evening to Lincoln, reaching that city at 10 o'clock. The primary object of the visit was to see the extensive engineering works of Messrs. Robey and Co.; but, early on Tuesday morning, the party proceeded to the ironstone workings at Greetwell, about two miles from the city. The ironstone is obtained from quarries, thick seams being near the surface. The Lincolnshire Iron Company first began to work the quarry in 1859, in which year 2000 tons of stone were obtained; but in 1875 the "get" had increased to 626,627 tons. Though the ironstone is easily obtained without risk and without the employment of costly machinery, it has to be sent away to be converted into pigs, and the yield of metal per ton of stone obtained is little if any more than 25 per cent.

Returning to the city the party at once proceeded to the engineering works of Messrs. Robey and Co., which are situated near the Great Northern Railway, a branch of which penetrates into the yard. The works cover an area of seven acres, and are divisible into two principal departments—one for the production of agricultural machines, the other for steam-engines of all kinds, including fixed, portable, mining, traction, and locomotive. The works give employment to upwards of 700 hands, and are now fully occupied. Throughout the various departments the working operations are carried on with well-ordered and business-like regularity. A striking feature in the establishment is the great ingenuity which has been displayed in making special tools for certain classes of work, many of such appliances having been invented and manufactured in the works, and are, therefore, peculiar to Robey and Co. By using these special appliances large quantities of work can be turned out, and uniform precision in results is attained. Indeed, an engine of any size can be turned out in a few days, and duplicate parts are always kept in case they should be called for by reason of breakage or disarrangement. One of Messrs. Robey and Co.'s mining engines was erected a few years ago at the Florence Colliery, belonging to the Duke of Sutherland, and possesses special features of interest to those engaged in mining and engineering pursuits.

After an inspection of the works the visitors were entertained at luncheon. The chair was taken by Mr. Clench, and the vice-chairs by Mr. Bell and Mr. Richardson, the company numbering upwards of 30. At the conclusion of the repast, which was of a most sumptuous description, the loyal toasts were disposed of in a hearty manner. Dr. Lowe gave "The Bishop and Clergy of the Diocese, and Ministers of all Denominations," for whom the Rev. J. J. Fox responded. The CHAIRMAN then proposed "Success to the North Staffordshire Institute of Mining and Mechanical Engineers." He observed that the Institute was not new to the firm of Robey and Co., for they had the pleasure as well as the advantage of meeting a large number of the members some years ago at Trentham, and it was then that they invited the Institute to visit Lincoln at some convenient time. Agricultural societies had done a great work in their day. There were also mechanical, scientific, and other societies; but the North Staffordshire Institute of Mining and Mechanical Engineers combined science with practice. (Hear, hear.) It had, perhaps, as wide a scope as any institute could possibly have. If they considered that underneath the word "mining" lay the whole stratification of God's earth, and that underneath the word "mechanical" lay every description of engineering they would understand the enormous scope the Institute had for pursuing its objects. (Hear, hear.) During the six years the Institute had been in existence it had carried on its work with a success unsurpassed by any other institution in the kingdom. Located in one of the best mining districts in the kingdom, with the example of the South Staffordshire Institute before them, great success had attended their efforts. But the success of the society was due in a very great measure to the energy and great labour bestowed by the several presidents, and the interest which they had taken in the various matters which had been brought before the members. (Hear.) The present was the first time they had paid Lincoln a visit, but he hoped it would not be the last time. He trusted that at some future time, when the firm had further developed their mining machinery, and had something more interesting to show them, they would visit Lincoln again, and give the firm the benefit of their (the members') practical observations, resulting from their knowledge of the use of machinery, which would redound to the credit of the manufacturers, as well as prove beneficial to those who used it. This toast was heartily received.

Mr. STRICK (the President), in acknowledging the toast, said he was sure that all the visitors were gratified with what they had seen at Lincoln. The machinery at the Florence Colliery, near Longton, which had been supplied by Messrs. Robey and Co., was very fine; and, indeed, it made that colliery really one of the show places of North Staffordshire, which all visitors from a distance were taken to see. Mr. Clench had pointed out how much was embraced in the term mining. In the North Staffordshire district there was great mineral wealth at great depths, which would be valuable but for the machinery necessary to enable them to recover the same; and it was to Messrs. Robey and Co. and other engineering firms that they were indebted for the best appliances for carrying on mining operations. They might obtain first-class machinery at reasonable prices, and there was no use in putting down common articles. There was something fresh to be learnt every day. How ever long a man lived he might continue to learn something every day; and he hoped the opportunities which had been afforded them of acquiring information that day had not been thrown away. He (Mr. Strick) then proceeded to propose the toast of "Success to Robey and Co.," observing that everything was in the most perfect order about the works, and the only thing he could compare the works to was a beehive, where everything was conducted with the most perfect regularity, which was the only true system of carrying on a large concern.—The toast having been cordially drunk, Mr. T. BELL responded. He alluded to the mutual dependence of mining and engineering firms on each other, remarking that without the miners produced the raw materials and the ironmakers supplied pigs, plates, and bars, the mechanical engineers would be unable to produce the requisite machinery to enable them to conduct their operations underground. The machinery which Robey and Co. manufactured was sent not only all over this country but to distant parts of the earth, and their determination was to endeavour to produce such articles only as it would be creditable to make.

Mr. C. J. HOMER, in proposing "The Press," said it was scarcely necessary for Mr. Bell to have told them that for the future Messrs. Robey and Co. intended to turn out nothing but good work, for everyone who had gone through their establishment that day must be convinced that it would be impossible for them to turn out an inferior article. The admirable manner in which everything was manipulated reflected the greatest credit upon everyone concerned. That morning they had paid a visit to Greetwell to see the raw material got out of the quarries which were not worked till the last few years. That ironstone was sent away to be smelted into pig-iron, and, mixed with Scotch and North of England iron, was used for producing the machinery which they had seen that day. It was extremely interesting to see the raw material for making iron; then to see coal and iron in the shape of pigs and bars delivered, and then to see the way in which it was worked up, every little detail being carried out with the most perfect regularity. He confessed that, for his own part, he should like to have an opportunity of making a closer inspection than he had yet had an opportunity of doing. He concluded by proposing "The Press."—Mr. BROWN responded.—The toasts of the health of Mr. Richardson, Mr. Howard, and the Ladies were severally proposed and acknowledged, Mr. T. M. GODDARD responding for the last-mentioned toast.

On leaving Messrs. Robey and Co.'s the visitors proceeded to Mr. Clarke's Patent Axle Works, where, by a system which is absolutely

certain in its operations, the heaviest bars are bent into requisite shape for engines and other axles in a remarkably short time.

After a brief stay at Mr. Clarke's the visitors were conveyed in waggons to the Cathedral, one of the finest of the places built for religious purposes in England. It was founded in 1088 by Bishop Remigius, on his translation from Dorchester to York, and is built in the form of a double cross. It is chiefly in the early English style. Its exterior length is 524 ft.; interior, 482 ft.; width of west front, 174 ft.; length of exterior of transept, 250 ft.; interior, 222 ft.; width, 66 ft. The Cathedral has three towers, two of which, 180 ft. in height, were formerly continued by spires 101 ft. The central tower, 35 ft. square, is 300 ft. high. The ruins of the old Palace, opposite the Cathedral, were next visited.

Lincoln under the Romans was a place of some importance, and under the Saxons and the Danes it preserved a good position. In excavating for the cellar of a house recently a massive Roman portico was discovered, and the members of the Institute were permitted to inspect the interesting relic of bygone days.

—*Staffordshire Advertiser*.

### DYNAMITE TRIALS IN LIMESTONE QUARRYING, MINING AND SHAFT SINKING, AND BREAKING UP IRON WRECKS.

Some dynamite experiments were carried out last week by Mr. John Harris, one of Nobel's Explosive Company's instructors, at the limestone quarries at Mickleton-in-Teesdale, belonging to the Teesdale Limestone Company. There were present Mr. J. C. P'Anson and Mr. Mark Bullen, of the Teesdale Limestone Company; Mr. Hugh Chaytor, Mr. Edward Robson, Mr. R. McCurrach, Mr. Geo. Neesham, Mr. C. P'Anson, jun., and Mr. J. Muirhead Armstrong, of the firm of P'Anson, Armstrong, and Co., agents for Nobel's Explosives Company (Limited). Mr. Hornby, the foreman, had been directed to have the holes bored in the strongest and firmest part of the quarry and in such a manner as would thoroughly test the power of dynamite as an explosive material; and in this instance he certainly put its powers to a very severe test. The first portion was operated upon by means of six bore holes in a section of rock 30 ft. long and 14 ft. wide, and fast at both sides. The bore holes were in two rows—three in each row—the front row 6 ft. from the edge of the quarry, and the second row parallel to the first, but 14 ft. from the edge. The bore holes were from 9 to 10 ft. apart. These were quickly loaded with dynamite, and an electric fuse (Brain's) inserted in the top of each charge, from each of which extended two small copper wires covered with a thin coating of gutta percha. These wires were then joined up in circuit, and all connecting joints left bare. The leading wires were then run off two reels (similar to ship's log reels), and joined to the fuse wire, and were then laid out on the ground for about 80 yards to a sheltered place safe to fire from. The quarry having been cleared of the workmen, the order to fire was given. The electric machine (a frictional one) was then unlocked, and the leading wires attached to the brass knobs (thus completing an electric circuit), the handle turned, and immediately the whole six charges were fired simultaneously, tearing out a very large quantity of solid limestone in a most satisfactory manner, much to the surprise of all present, as it was thought that the dynamite had been overburdened by the work set for it, as the bore holes were both small in diameter and not deep. Several holes, both in horizontal and vertical positions, were then charged, and fired in detail by the ordinary Bickford time fuse, all of which did their work perfectly. Two horizontal holes in the face of the West Gullet were then loaded in a similar manner to the first, and exploded simultaneously by electricity, bringing the rock away to the bottom of the holes. There was about 12 ft. of rock above the last-named holes. The experiments were all very successfully and satisfactorily carried out, and it was admitted by all that the bore holes would not have contained enough gunpowder or other explosive material to have blasted the rock out. Dynamite is growing much in favour in this country, and many hundred tons are used every year for tunnelling, lead, copper, tin, coal, and other mining; pit sinking; driving narrow headings or gullets for opening up quarries; and in whinstone, granite, and other quarries generally; for dock and harbour work, particularly where the work is attended with a quantity of water; and the most rapid pit sinking on record has been accomplished with dynamite and electricity, as instance the sinking of a 15 ft. pit at the Houghton Main Colliery, near Barnsley, where 21½ yards of sinking was accomplished in seven consecutive days. The ground sunk through was chiefly strong stone bind with 8 ft. of rock, and required 931 ft. 6 in. of boring for blasting, and there were also 322 gallons of water per hour to bale off the bottom. This was at a depth of 400 yards, and the manager reports that had the engine been able to draw it out fast enough more would have been done. During this time only eight hours were lost in repairs. From a dozen to 16 holes or more were fired simultaneously, and it is a singular fact to be noted that the debris from the shots do not fly about so violently as when holes are fired singly. In the simultaneous blasting the charges all work to each other and stir the whole lot up together, as the resistance is less than when shot off in detail, and the bottom of the pit is in some instances brought up 10 or 12 ft. after a round is fired by electricity. There is no smoke in exploding by this system, as is the case with time fuses. The electric apparatus is kept in a safe place at the top of the pit, and the master sinker carries the key in his pocket to prevent any tampering with it while loading the holes and coupling up the wires in the bottom of the pit. Two cables are permanently suspended down the side of the pit from the surface, so that the firing is done from the bank after the men are all cleared out, which is preferable to lighting time fuses in the bottom and having to be drawn up in a hurry, and other dangers, such as misfires, &c.

Dynamite is now rapidly coming into use for breaking up large blocks of iron, such as heavy mill rolls and other castings that cannot be broken otherwise. The wreck of the iron steamship Oscar, of Leith, 1258 tons gross, 824 tons net register, 261 ft. long by 31 ft. beam, by 23 feet depth of hold, 110-h.p., left Shields on Jan. 5 last at 6 p.m., and ran ashore at 10 p.m. at Whitby in a fog and was wrecked. This wreck was bought by Messrs. Millburn, Hunt, and Fairley, salvage contractors, Sunderland, and an attempt was made to break her up with gunpowder, but without effect. Last week Mr. Harris was sent down by P'Anson, Armstrong, and Co. the agents at Middlesbrough of Nobel's Explosives Co., to operate on the wreck with dynamite. Mr. Weakner, a Tyne-side submarine engineer, and the instructor went to work on her, assisted by Capt. Millburn and Mr. Brown, a Newcastle diver. A charge was made up in a common canvas hose from 9 to 10 ft. long, consisting of 30 lbs. of dynamite, with an extra 10 lbs. in a lump fixed firmly on to the end. The diver took this charge and placed it in the lazarette, the heavy end being fixed against the stern-frame, and the tail-part trailing forward along the starboard side, as the wreck lay on that side. After the diver cleared out the charge was exploded, the result being that the stern-frame and all the steering gear were smashed out and lay on the rocks, and the starboard quarter was parted right away. The next charge was placed in the port bow, close on the forefoot, and blew the forefoot away and ripped the port bow plates through, and it fell over, separated from the keel upwards. Several small charges were then exploded in the cylinders, and on the condenser, breaking them up, and a 5 lbs. charge was then lowered into the crank pit, which blew down the remaining part of the engines and condenser in such an effectual manner that the diver was enabled to send up the condenser and nearly 2 tons of brass in half-an-hour the next day. The charges were fired by the ordinary "time sea fuse," a long length of which takes as much as a quarter of an hour or twenty minutes to burn to the charge. This is a great loss of time in a tide, and it is proposed in future to explode all the heavy charges in deep water by electricity, which is much safer and more expeditious than with the "time fuses." A few more heavy charges laid along the wreck lengthwise will part it, and it can then be easily cut up by smaller charges into suitable sizes for lifting. No trouble was taken to make the canvas hose that enclosed the charge waterproof, as dynamite is practically unaffected by water for several hours; but as it has to remain under water a long time it is advisable to put it in india rubber hose to prevent the nitroglycerine from washing out by the action of the water.

Many other wrecks have been successfully broken up and removed



by the aid of dynamite, as instance the wreck of the iron steamer Chusan, broken up by Mr. Gilray, of Greenock, and The City of Lucknow, an iron vessel of 1600 tons register, sunk off Rockport, in Belfast Lough, about 14 years ago. The Belfast Harbour Commissioners were very anxious to have this wreck removed, as it interfered with the navigation. The officers of a man-of-war which visited the Lough undertook to blow her up with gunpowder. The Commissioners provided the gunpowder, and, all arrangements completed, special trains were advertised, and, a host of people came to see—what?—a complete failure, for the gunpowder got damp and refused to go off, so the wreck remained a monument of departed glory. Some time afterwards a party of divers were allowed to operate on her for what they could get, but having only gunpowder to blast with they had to abandon the work. Cotton powder was then tried on it, and proved more powerful by far than gunpowder when it exploded, but about one shot in every four missed fire altogether although properly secured and made waterproof, for like gunpowder it must be kept dry. Although the detonator exploded the cotton powder often burnt away without exploding. Dynamite was next tried with complete success, as it did not miss fire and burn away, and being of a plastic nature it would comply to any shape, such as angles, square holes, &c. The other compounds, being made up in hard cartridges, were not so handy, and liable, too, to get damp and useless. In some places where the plates could not well be got at 1½ in. iron gas tubes, pointed at one end, were driven into the mud underneath, and then carefully filled with dynamite and pressed home with a wooden rammer. When exploded it cut and threw up the iron plating so that it was easily recovered.

The iron masts, beams, chains, and wire-ropes were cut off by tying small canvas hose containing dynamite round them, and then exploding it. The wreck was removed by these means, and the place is now clear for shipping to pass over. This work was done by Messrs. John McConkey and Sons, of Donaghadee. They have also broken up several other iron and wooden ships with dynamite, and they also saved the steam ship City of Venice, iron vessel, 380 feet long, 38 feet beam, 29 feet depth of hold, which went ashore on the North Rock, near Cloughy, County Down—had rocks up through her bottom in some places 4 feet high. Every plan was tried to raise her and haul her off by aid of steam tugs and steam winches with cables attached, with anchors laid off in deep water, but to no purpose, as she could not be floated high enough to get clear of the rocks. The "platforming" which had been fixed in her hold to keep the water out and float her was then partially removed, holes were bored in the rocks protruding through the vessel, and small charges of dynamite fired therein, which broke away the rock. Some of the tops of the rocks outside the vessel were also blasted away. This was completed in two tides without further injury to the vessel, and she was got off and taken to Belfast, and repaired by Messrs. Harland and Wolff. Thus was this fine steamer saved, and in many instances vessels stranded on rocks may be got off by judiciously applying dynamite to blast away the rock on which they rest, and thus save valuable property. The Gipsy, lately wrecked in the Avon at Bristol, was successfully broken up with dynamite, and in one instance as many as 32 charges were fired simultaneously by electricity by the foreman in charge of the drilling machines at the docks.

#### LEAD MINING IN FLINTSHIRE.

The lead mines of North Wales have long been celebrated for their richness, and in connection with the subject Messrs. THOMAS BROTHERS, of Liverpool, remark that of the 30,000 tons of lead ore per annum which the principality of Wales returns, nearly one-half is raised from the limestone measures of Flintshire and Denbighshire. These districts, therefore, present a most favourable field for speculative investment. Foremost amongst its mines are those lying in what is known as the Halkin Mountain range, of which North Hendre, Gorsedd, Prince Patrick, and Rhosmor are the most celebrated. In their very midst is TRELLYNA MINE, a property worked until recently by a private company with considerable success, and for the further development of which a limited company has now been formed, with a capital of 10,000l., in shares of 5l. each. The property, from its decided physical and geological advantages, is considered to be the most promising in the district. Large quantities of lead ore have been raised and sold, and as the veins improve in richness as depth is attained it has been decided, on professional advice, to continue the workings at and below the 65 fm. level, where the lead in sight in the lodes is considerable, and the prospects brilliant. To do so necessitates the erection of a winding engine and other appliances, the cost of which it is proposed to defray by the issue of a portion of the unallotted shares.

Messrs. Thomas Brothers observe that facts prove beyond doubt that it is to its mineral wealth England owes its present proud position amongst the nations of the earth; and that the returns on the capital invested in mining speculations bear most favourable comparison with the profits realised in other branches of national enterprise. That there are failures in the mining world cannot be denied, but at the same time they may be contrasted advantageously with the many lamentable catastrophes which from time to time mark the progress of banks, insurance offices, railways, and private firms. But conceding that mining failures are equal to those of other industries and so disposing of that point, a comparison of the respective profits will repay careful investigation. The National Bank of England's last dividend was at the rate of 21 per cent., but South Carolina's was at the rate of 480 per cent.; the Birmingham Joint-Stock Bank was 18 per cent., but Green Hurth was 200 per cent.; the London Joint-Stock Bank was 20 per cent., but Devon Great Consols was 150 per cent.; Union Bank was 15 per cent., but East Pool was 103 per cent.; London and Westminster Bank was 14 per cent., but Wheel Prussia was 50 per cent.; the City Bank was 10 per cent., but Caron was 50 per cent.; and London and South-Western Bank was 8 per cent., but North Hendre was 40 per cent.

It would be possible to extend these comparisons to a far greater extent, not confining the list to banks, but including all trading companies, yet in the whole range of investment none can be found yielding such great profits as are returned by mines. It is a fact that the losses sustained by mining companies during the last half century would not amount to a tithe of what has been lost in banking, finance, railway, and other commercial companies during the last ten years. Therefore it may be confidently stated that not only as an investment for the most careful, but as a means of rapidly increasing capital for the speculative, proved mining properties constitute the best of outlets for the employment of surplus capital.

**PREDICTIONS AND REALISATIONS.**—The name of Mr. J. S. PHILLIPS, of San Francisco, has been for many years past familiar to the readers of the *Mining Journal*, and his name is now prominently before the Californians, in consequence of the way in which his anticipations have been fulfilled in the case of the Eur-ka Milling and Mining property in Plumas county, California. The report to which reference is now so freely made was furnished to the previous owners in April, 1871, and the result of seven years milling have shown how accurate were his views. Two years since Mr. Phillips examined the Murchie Mines in Nevada county, California, and gave a very favourable report upon them, which it was stated at the time was to be forwarded to London, where the owners were negotiating for the sale of the property, but this subsequently turned out to be merely a rumour, the Americans never having had any intention of letting it out of their hands. The last number of the San Francisco Mining and Scientific Press now announces rich discoveries in the Murchie Mine, which is stated altogether to bear a very healthy aspect. The report states that the mine is situated on Deer Creek, about a mile above Nevada, and is worked at good profit. It is one of the oldest mines at present working about Nevada, having been in operation some 15 years. The shaft is down 400 ft., with a good ledge. The rock is raised by steam hoisting works, situated on the hill side, some distance above the mill, and is from there run on a tramway down to the mill. This tramway has a double track, and is so arranged that the full car going down to the mill hauls the empty one up. The mill is at present a small one, having in it only 10 stamps, but men are at work putting in eight additional stamps, that being all there is room for in the mill building. We are informed by Mr. Perkins, the superintendent, that the company also intend to put in a number of additional pans, concentrators, &c., pieces of apparatus which are somewhat lacking at present. The mill was originally run by a large water-wheel, and its present location so far below the hoisting works was determined by that fact, it being necessary to put it down there in order to get enough fall; but some time ago steam-power was substituted, on account of the water supply being very uncertain at times. There is wood in sufficient quantities on the company's grounds adjoining the mill to last many years. The rock at present coming from the shaft looks very fine. It appears that at present the British Columbian mines are attracting attention in San Francisco, and Mr. Phillips has recently returned to that city for a tour of inspection. The same authority states that he has been urged by influential parties residing in British Columbia to remove to that province, and take up his permanent abode there. While this gentleman has during a long residence in California met with great appreciation here it is possible he might find in British Columbia professionally a more inviting field. That it is less crowded is no doubt the case. Indeed, we have reason to believe there is a lack of thoroughly capable metallurgists and mining engineers in that country. However this may be our colonial neighbours may consider themselves fortunate should they secure the services of one so well qualified to advance their growing mining interests. Professor Phillips has had 40 years of practical and theoretical mining experience—38 in the mine of Cornwall, and 12 on this coast. He is complete master of the business in all its departments, being acquainted with both its science and its practice. He is the author of one of the most complete and useful works on metallurgy and kindred branches of the art. He is an accomplished assayer, the inventor of many ingenious devices, knows how to open a mine, put up a mill, and manipulate the ores. His record both as regards competence and fidelity is as good as that of any

other expert on this coast, and we feel certain that he will not suffer this good record to be tarnished should his labours be transferred to another field.

#### Meetings of Public Companies.

##### PANDORA LEAD MINING COMPANY.

An extraordinary general meeting of shareholders was held at the offices of the company, Austinfrs., on Monday, Mr. J. J. PYNE in the chair.

The SECRETARY read the notice calling the meeting. The meeting was called in pursuance of a requisition of shareholders for the purpose of passing the following resolutions, or some or one of them, or any modification of, or addition, or amendment to them, or any of them:—

- 1.—That a change be made in the management of the mine.
- 2.—That the present directors be requested to send in their resignations, failing which the directors be removed, notwithstanding that their period of office has not expired, and that qualified shareholders be appointed in their stead.
- 3.—That the offices of the company be removed to No. 1, Finch-lane, in the City of London.

Mr. J. H. CROFTS (reading from a paper in his hand) said the action he had taken, which had caused them to assemble to-day, had at any rate been of some value to the whole body of shareholders, for he could fairly claim that it was owing to that action that the financial position of the company had been placed on a more satisfactory basis.

Dr. BEATTIE said he hoped Mr. Crofts was not going to detain them by going over all the subjects referred to in the circular which had been sent out.

Mr. J. H. CROFTS said he was going into no personal matters, nor was he going over all the points again. His action, like that of many others who had endeavoured to do good, had been misunderstood and misrepresented in some quarters. He had been accused of having certain aims and ends in view, which were entirely beyond his thoughts, and he had been met by the board in a way which, he thought, redounded little either to their dignity or credit. His first circular contained no actual personal reflection; it brought certain charges against the board in its official character, and although he had little wish to take part in mere personalities, he was there to reply to anything which the directors might have to say in vindication of their statements as affecting his. When he first brought the matter of the present condition of the mine before the shareholders, many of them had no idea of that condition; the regular published reports had ceased to appear, and it was unknown to many of them that the mine was full of water, and that the directors were not doing anything to get it out. He walked one evening through the sett. Every reservoir was, he believed, now empty, and must remain so until heavy rain occurred. The erection of a small 12-horse power engine in due season would have averted this, and it could have been done when funds were in hand. The report that was sent to the shareholders in the directors' circular was dated two months back; the hands had been discharged, and all working was, of course, suspended, including the dressing operations. With respect to the Mineral Corporation, his friends were distinctly solicited to assist the Pandora Company at a time of need; there was no money in hand, and although the offer, in reply, he could well understand, was not acceptable to the directors, for their adoption would have been a reconstitution of the board, and a removal of the office, yet it was endorsed by shareholders holding more than half the mine, and there had appeared no probability of their getting the money elsewhere, it was thought only right that the shareholders should be called together. He was not at all surprised, considering the very great exertions the directors and the secretary had used for the purpose of maintaining a gravely imperilled position by the issue of a very personal circular, by persuasive letters, written, printed, lithographed, and even telegrams, to those who had expressed their dissatisfaction with the management, and considering that the directors had led them to believe that the capital required would be raised elsewhere (for this the directors recognised was the main point upon which their position hinged), that they should have succeeded in inducing some of those shareholders who otherwise would have supported the Mineral Corporation to give their proxies to the board. A board always had the advantage gained from mere possession, besides the material advantage its position gave it over any individual, who, working totally unaided, might impugn their policy, consequently many shareholders had written to him within the last few days, who, whilst thanking him for his action, which they were good enough to say had been of service to the whole body of shareholders, stated that as the money was likely to be raised by the board, they felt inclined to give them a further trial. The actual support he had finally received, which, considering the organised official opposition he had met with, and the issues which had been raised, totally apart from the simple one of acceptance or rejection of certain proposals, and the enquiring into certain stated complaints, he had reason to be satisfied with, as it represented over 2000 shares out of the whole 8000. How much the directors had received he did not know. This result alone would show the directors that there was a considerable section of their constituency which (their circulars, letters, and telegrams notwithstanding) thought that blame was attributable to them for their past management. He was aware that this support was not sufficient to carry the measures originally proposed—measures which he believed would be advantageous to the shareholders; and having had the opportunity of personally consulting one of his French clients, he had been requested to draw their attention to the fact that the directors had not only some views which were strongly expressed at the last board meeting of the Mineral Corporation, as stated to the Pandora shareholders in his second circular. He, therefore, now withdrew the offer, and left it to the directors to fulfil the hopes they now held out to the shareholders of being able to raise the 1400l. elsewhere, and of exhibiting some energy in their management. He was using the words he was specially requested to use when he stated that it was the belief of his clients that, with the company's mines surrounding Pandora, very much advantage would have accrued to the Pandora by some systematic scheme of management being adopted for the entire group. His clients had been particularly struck with the previous happy management of the Pandora, and they had been particularly struck with the different small and adjoining sets, which, if a comprehensive system of development were adopted, could be quickly developed on a scientific plan, embracing the thorough and methodical working of the district. There was not a mine in the Llanrwst district with a shaft more than 50 fms.—he spoke from personal observation—and had such a district been discovered so long as the Llanrwst district had in (say) Cornwall, he only gave the mining capitalists and managers of that county their due credit when he said that by this time it would have been in course of vigorous and earnest development—in fact, they would have settled down long since, to the words of the North Wales correspondent of the *Mining Journal*, "to intelligent, honest, and persistent mining, with the intention of making the lodes, the average character of which by this time is known, pay." The observation as to the average value of the lodes referred, of course, only to their average value down to a certain depth, for, as they had seen, a deep mine was an unknown thing. It was the aim of the company which had lately entered the district to do all they could towards the realisation of those views, and it was hoped that steady work would be long show a different state of affairs there. He had now formally to withdraw the offer of the Mineral Corporation, and should not, of course, under the circumstances move the resolutions for the consideration of which the meeting had been called. He believed the shareholders would regret that they had had the opportunity of meeting to-day, and of discussing the position of their property. There could be no doubt, he thought, he wished to claim nothing but what was fairly due—that the action taken by the Mineral Corporation had been, and would be, conducive to the benefit of the shareholders. In the first place, it could not be denied that the directors had, not for two, three, or four months, but for many months, endeavoured to raise this 1400l., and had hitherto completely failed to do so. They had certainly on several occasions appealed to the shareholders to subscribe, and it was only when they received an offer of the capital on terms which, if accepted, would have necessitated a change in the management of the mine, that they had stirred themselves, and had been placed upon their mettle as to obtain the results announced to you in their circular—an actual subscription of 300l., and a promise of other subscriptions conditionally on the whole being subscribed.

The SECRETARY: That is not correct.

Mr. CROFTS went on to say he hoped the directors would now be able to announce to the shareholders that the whole sum had been actually raised. By this meeting he hoped the shareholders would be able to ascertain more exactly their actual position, and that they would discuss to-day the actual business matters, which he thought affected prejudicially their interests, and which, therefore, ought to be considered. One very important matter for consideration was the continual periodical absence in Scotland for some days of the manager, Capt. Nottingham, whom he was glad to see present. He might say at once that he had no personal feeling against Capt. Nottingham, who had always treated him courteously on the occasion of his visits to the mines. He was perfectly aware that Capt. Nottingham, in some degree, lately had been hampered for want of funds; and, at the same time, he believed he was correct in stating that he had had the charge of the mine for about six years, and that under his management many thousands of pounds had been spent with no adequate result, in his opinion. He should, therefore, have preferred to have seen the mine under a more energetically constituted manager. The directors, however, still expressed their confidence in Capt. Nottingham, and if Capt. Nottingham was to be retained he hoped it would be made a *quid pro quo* that his attention was given only to the mines in the district. Capt. Nottingham might do his best according to his own lights, but he unhesitatingly said that effective supervision could not be maintained when the head was so frequently away. In these days of low prices for the produce it was essentially necessary that the eyes of the master, which in many cases would do more than his hands, were continually on his staff. He was not personally sanguine as to the results under the management as at present constituted, but, as it would receive another trial, he hoped the most energetic measures would be adopted to quickly drain the mine and develop it. The rich lodes of the Pandora were in the bottom levels—fact the importance of which could not be over estimated, for it showed that they were increasing in value as depth was attained, and he hoped that when Capt. Eddy inspected the mine the dressing arrangements would meet with his attention. The price the blends had been realising of late was lamentable, and there must be a fault somewhere. He expressed his thanks to the shareholders who had given him their support, and for the sake of all he hoped that the future results would be different. He should leave it to time to show whether his opinion as to the efficacy of the present management would be verified or not.

Dr. BEATTIE said that Mr. Crofts had made his statement in good temper, and he should be very glad to hear the remarks of the directors in reply. He had been in the Wollongby Company (now Pandora) through his friend Mr. Murchison, and he confessed that he had written expressing some little anxiety that matters should progress a little more rapidly. No doubt the directors would be in a position to say that they had not been supported by the shareholders, and, of course, shareholders could not expect directors to put their hands in their pockets to find money for the company. He knew well from experience the difficulties of directors when they were short of capital, and were not supported by the shareholders. He should be glad to hear from the board what the prospects of the company were.

He had been a good deal connected as a shareholder with mines, and his confidence in all gold, silver, and lead mines was somewhat depressed.

The CHAIRMAN said he would briefly reply to the attacks of Mr. Crofts upon the board. Mr. Crofts referred to the want of funds. Now, it was quite true that the board had been short of money, and at the last meeting they stated there were 700 shares which it was desirable should be placed. A notice was issued to all the shareholders, asking them to come forward and take up shares, but he was sorry to say there was no reply to that; and in February, having heard that the Mineral Corporation had been in negotiation for some shares in a mine in the Llanrwst district, he mentioned to Mr. Crofts that this company had 700 shares to place, and asked whether the Mineral Corporation would come forward and assist in placing them. He informed Mr. Crofts that if the shares were placed the directors would be willing to allow him a commission. This was in February. The matter hung on until April, when Mr. Crofts told him a French mining engineer was going over to inspect the mine. Mr. Crofts said he was going down to the mine on a certain day, and he (the Chairman) said it was a pity, as Capt. Nottingham would be away on that particular date. Mr. Crofts' reply was—"I cannot help it; all our arrangements are made, and we are bound to go down on that day." They went, and he was glad to find, when they came back, that the French engineer thought that it was the best mine in the district. From that time till June the directors could get nothing definite from Mr. Crofts as to whether he would take up the shares or not, but he held out the probability of its being done; whereas if Mr. Crofts had given an answer in April or the commencement of May as to whether the shares would be taken up or not, and if he had said no, the chances were that the directors might have got an agent to the mine now, and he attributed it to Mr. Crofts' delay that the mine was now full of water.

A SHAREHOLDER: Was there anything binding?—The CHAIRMAN: No. The SHAREHOLDER: Then I think you should not have delayed. If there was nothing binding it was optional with you.—The CHAIRMAN: But Mr. Crofts said, from time to time, that the shares would mostly be taken, and we did not want to trouble the shareholders unnecessarily.—Mr. CROFTS: I tried to put the negotiations through.—The CHAIRMAN: You said you believed they would take the shares.

A SHAREHOLDER: Was an offer made?—The CHAIRMAN: They did make an offer in June, but such an offer as we could not possibly give way to. We knew nothing about the Mineral Corporation, and we were bound to know who and what they are, and what they had subscribed.

The SECRETARY: They would probably have offered bills. Mr. CROFTS: Did anyone offer bills?—The SECRETARY: I will prove it afterwards. I have something to say afterwards.

The CHAIRMAN said no reply had really been received, and they knew nothing until Saturday last, when they found that 810 shares only of the Mineral Corporation had been subscribed for, while 5000l. (500 shares) were to be given to the promoters.

The SECRETARY said that made only 3000l. subscribed for working capital.

Mr. CROFTS said that all the money subscribed was in a Welsh bank, and a cheque could be drawn for it at any time.

Mr. MURCHISON: The money in Wales is there for carrying on the mine being worked there.

The CHAIRMAN: As to asking the shareholders to pass the company over to the French company they could do nothing of the sort, as they did not know who they were. As regarded the charge of a want of energy, Mr. Crofts really knew nothing about the facts of the case, and, in fact, did not know where the mine was till the last 12 months. Now he (the Chairman) had been connected with the mine from the beginning. He went and saw Capt. Nottingham in 1871. This was a young mine which had been opened up from surface. Everything on the mine had been done by them; they had erected the wheel, the fine new level, the distill, and had sunk shafts. Mr. Crofts simply saw the mine as it is at the present time, and with water in it, but the mine was not receiving any damage from that, and the only thing which had occurred was the delay, which the directors regretted. There was nothing to "fall in" in consequence of the water being in, as it was hard ground, and as soon as the water was pumped out the mine would be as good as ever. Since the company commenced, in 1871, they had sunk shafts to the depth of 100 fms., they had driven levels 442 fms., they had driven cross-cuts 44 fms., and had stopped 900 fms.—making a total of 1573 fms., or nearly two miles of ground; and yet Mr. Crofts came forward, without any knowledge (for he was not a mining man), and said there had been a want of energy. Capt. Nottingham was present, and would be glad to answer any question which any shareholder might put. There was one other point which Mr. Crofts brought forward as a good thing—that if an adit level was driven from Hafna into Pandora it would drain the Pandora. Now, that was a mistake. Mr. Crofts had referred to some engineer whom he had employed to inspect the mine, but he was evidently labouring under a mistake. At Hafna they had lately commenced in the deep adit, but even if that were driven into Pandora it would come in at a level of about 5 fms. below the bottom level.

Mr. CROFTS said the Chairman did not know from what level the adit was to be driven. It might be driven from lower than the level mentioned.

The CHAIRMAN: It cannot be driven below the level of the new level. Mr. CROFTS: The new level there is no intention whatever of being driven. We have obtained a position to commence a level in a neighbouring mine.

Mr. MURCHISON said that in one of his circulars Mr. Crofts had stated that the extension of the Hafna low level, which was suggested should be driven through to the Pandora, would drain the Pandora Mine.—Mr. CROFTS: That is not so.

Mr. MURCHISON: This is another of Mr. Crofts' misrepresentations, and here he is denying his own words. Mr. Murchison then read from Mr. Crofts' circular his remark to the effect that the low Hafna adit could be driven to Pandora, and drain that mine at a much lower depth than its present without pumping machinery, and remarked that Mr. Crofts must be pinned to his own statement, for if he denied that he would deny anything.

Mr. CROFTS: I meant the deep level. The engineer stated that the extension of the deep adit level would drain the water.

The CHAIRMAN: He is mistaken. It will take them nearly ten years to drive the deep adit level.

A SHAREHOLDER: What is the distance?—The CHAIRMAN: It is three-quarters of a mile at least.

Mr. MURCHISON: What is the object of driving an adit which is of no use when it is driven?—Mr. CROFTS: It was a suggestion made to the shareholders.

Mr. MURCHISON: A misrepresentation to induce them to vote for you.

The CHAIRMAN, in answer to a SHAREHOLDER, said there were plenty of means of draining the mine.

A SHAREHOLDER: Then you do not want an adit?—The CHAIRMAN: We do not propose to have one. Our mine is so situated that all the water pumped out of it is put into the wheel again.

A SHAREHOLDER said he should like to know the directors' and Capt. Nottingham's opinion as to what they contemplated in regard to working the mine?

The CHAIRMAN said that as soon as all the 700 shares were placed, which he hoped would be very shortly, they would get an auxiliary engine.

A SHAREHOLDER: Could you not borrow one?

The CHAIRMAN said no; they could not purchase an engine and place it on the mine, and the engine must be of 15 to 20-horse power, which would act as an auxiliary to the water power. There was also a reservoir, the water of which would afford working power. As to the reflections which had been cast upon Capt. Nottingham, he could say that he had known Capt. Nottingham for seven years, and a more honest straightforward man, or a man in whom they could place more implicit reliance could not be found. As for his energy, if Capt. Nottingham had the whole of his earnings placed in Pandora he could not take a greater interest in it. As to his being away from the mine four days in the month, it was a management of the mine when he was away. All the business was done by Capt. Nottingham, who simply, once a month, left the mine, and on the Thursday night and was back again on the Monday night. But he might mention that it did make a difference in Capt. Nottingham's salary, for at one time, and before he took the other engagement, he was receiving a larger salary from the Pandora Company than now. They could not be a better man at the mine than Capt. Nottingham.

A SHAREHOLDER: Are the reservoirs still empty?—The CHAIRMAN said they were. Curiously enough, although there had been a great deal of rain in London and other places, in the district of the mine there had been a very dry season since February last.

A SHAREHOLDER: There is no leakage from the reservoirs?—The CHAIRMAN: None at all. As to the financial position of the company the directors were determined, as he had said, of having the 700 shares placed, and they expected to have them placed in the course of a few weeks, and the auxiliary engine would then be obtained. They could not get the engine before, as they did not wish to run into debt. If lead had been at its old price, and the company, instead of getting 9l. 10s. were getting 15l. 2s., they would see what a great difference it would make in the working of the mine. It not only ate up the profits, but also ate into the expenses. The mine was now in debt only 300l.

A SHAREHOLDER asked what was the condition of the dressing machinery?

The CHAIRMAN said it was most satisfactory. When driven from the point as to what was obtained for the ore, Mr. Crofts went off at a tangent regarding the cost of dressing. He knew nothing at all about it. Now, the cost of dressing the ore was as cheap, if not cheaper, than in any other mine of the same character, including spalling and tramming from the pit. In fact, the cost included everything necessary to get it ready for market.

Mr. COOKE said he was sorry to oppose Mr. Crofts in this matter, but he must confirm the statements of the Chairman that there was great delay in carrying out the negotiation of the subscriptions to the unallotted shares. He was led to expect that the negotiation would be being conducted, and privately he had the assurance that it would be conducted so as to benefit the Pandora Company. He had no idea there was any condition to be attached to the subscription proposed to be made by the French Mineral Corporation. He thought the affair would be laid before them, and that the offer would be accepted or declined, but he was unprepared for the condition that the office must be removed to No. 1, Finch lane, and immediately he found that was one of the conditions he gave his support to the directors instead of having the office in a stockbroker's office.

Mr. HILL (a director) said he wanted to know something of the French company, and Mr. Crofts was asked for information, and in reply to a letter from the board asking the financial position of the Mineral Corporation, and also for some information regarding the directors, Mr. Crofts wrote:—"I am satisfied that some of the questions asked are such as my friends will not consider they are bound to reply to."

Capt. NOTTINGHAM said he should be most happy to give the shareholders every information as to what had been done, but, as a matter of fact, he wanted his done would really speak for itself, and that was the way in which he wanted to work to speak—he did not want to speak for it. If they knew the circumstances in which he had been placed, and the amount he had to do monthly, he would not have been accused of want of energy.

A SHAREHOLDER said that he for one would go down to the mine; he was an engineer, and no chicken in his business, and if he could give Capt. Nottingham a lift he would do so.

Capt. NOTTINGHAM said that as to the dressing machinery most of it had to be made on the mine, with the exception of the crusher, but they were fully sufficient for the requirements of the mine. Of course he did not say it where it was not open to improvement, and he should be happy to improve it where it was possible; but he had done the best with the money in his command, and those who thought proper to blame him should bear in mind the means which he had to deal.

A SHAREHOLDER: How soon will you get some steel to crush?

Capt. NOTTINGHAM: As soon as we start the wheel for crushing.

In answer to a further question, Capt. NOTTINGHAM said that the stroke of the



pump was about 5 ft., and by working three strokes a minute all round the water could be kept down. The depth of the shaft was 33 fms. from surface, and they had two lifts, a plunger lift and a drawing lift. He corroborated the Chairman's statement that the dressing of the ore was done as cheap as at any other mine with similar ore. He had to pay 20 p. cent. more for wages than when the mine first started, owing to the other mining operations which had been commenced in the district. Up to the present time all the promises which he had made in connection with the mine had been fulfilled. He could at times have sent more ore to market, but he had preferred to work the mine in a proper and regular way. Leaving out the engine question, when in regular work again they could, even at the present price of lead, pay the costs, and with any rise in the price of lead they could make a profit at the bottom levels advanced.

A SHAREHOLDER: Would 14000. enable you to go on and open up the mine to a paying condition?—Capt. NOTTINGHAM said he had every reason to believe it would. As far as he had gone the bottom levels and lodes were as good, if not better, than the lower levels. There were two runs of ore still in front of them, and if they got them at the bottom the position of the company would be established.

THE CHAIRMAN, in reply to a Shareholder, said the contemplated cost of the engine was between 3000. and 4000.—A SHAREHOLDER said it would be wise policy on the part of the board to go in for an engine of the utmost power required. Dr. Crofts said he was very pleased to hear what Capt. Nottingham had said. Capt. Nottingham was evidently an educated man, and from the way in which he spoke an experienced engineer, and he had every confidence in him and in the board.

Mr. MURCHISON said he wished to draw attention to some of the inaccuracies and misstatements in the circulars and statements of Mr. Crofts. There had been gross and wilful misrepresentation on the part of Mr. Crofts, and he wanted to show them the sort of man who had brought them here to-day. The first thing they had to consider when a man took the trouble and went to the expense which Mr. Crofts had done was—What was his object? Now, what motive had Mr. Crofts with his holding of 15 shares? Was that an interest sufficient in itself to induce Mr. Crofts to publish these statements? Mr. Crofts told them that his profession was to buy and sell shares at a profit. Therefore, on some days Mr. Crofts had shares, and on other days none at all, and the profession which Mr. Crofts followed was in no way to the interests of the shareholders. But Mr. Crofts said that he had many shares besides the 15 which were in his name; if that were the case, why did Mr. Crofts borrow 200 shares some time ago?—Mr. Crofts: You have no authority to say that.—Mr. COOKE: It is now settled.

Mr. MURCHISON: What is settled?

Mr. COOKE: Did I borrow 200 shares of you, Mr. Cooke?—Mr. COOKE: No. Mr. COOKE said he would make a statement, but Mr. Crofts objected to his doing so. Both had then a private consultation, and then Mr. Crofts said that as Mr. Crofts had withdrawn a great deal, this discussion was useless, and perhaps injurious.

Mr. MURCHISON: Mr. Cooke himself said last week that Mr. Crofts had borrowed 200 shares of him.—Mr. COOKE: Before we knew the result of this day's meeting Mr. Crofts promised to withdraw the 200 shares out of the proxies he would receive.

Mr. MURCHISON: Why should he do that if he did not owe you 200 shares?—Mr. COOKE: The shares were given me in the way of security.

Mr. MURCHISON: Mr. Cooke said he had been pressing for the return of the shares, and it was a curious thing that the negotiations with Mr. Crofts should have held many more than 15 shares. It is a quibble his denying the fact. The small interest Mr. Crofts held could not be the inducement to take the course he had. Then, how long was it that Mr. Crofts had entertained the opinion that the works were not being properly carried on? On April 15 last, in some weekly notes which were written by Mr. Crofts in a mining newspaper, Mr. Crofts stated that he had just visited the mine (this was about the time the Mineral Corporation was about to be formed), and was very pleased at the appearance of Pandora, which was a mine destined, in all probability, to take a prominent position in the mining market, that the surface machinery was all that could be required, and he was a curious thing that the negotiations with Mr. Crofts should have held many more than 15 shares. It is a quibble his denying the fact.

Mr. Crofts wrote a few months ago regarding the mine:—"The first meeting of Pandora has just been held. The present company has sold lead and blende to the amount of 23600.—a result which is very satisfactory." Again, "A prudent enlargement of the reservoirs has enabled full working to be continued in a very dry season." And yet Mr. Crofts now tells the shareholders that the directors had lacked energy, and were wanting in foresight in not having an engine. Why did Mr. Crofts alter his opinion the other day? Because it was a good thing for the Mineral Corporation. Mr. Crofts said he was not to be secretary, but the office was to be at 1, Finch-lane, and Mr. Crofts's clerk was to be secretary, and it was a curious thing that the negotiations with Mr. Crofts should have been conducted by Mr. Crofts and not through the acknowledged organ of the company, the secretary. Therefore, although the clerk was the nominal secretary, there was no doubt whatever that Mr. Crofts was, to all intents and purposes, the real secretary. The directors stated that they could get no satisfactory information of the so-called Mineral Corporation; but Mr. Crofts said this was wrong because my clerk went to his office about it. I did not know that my clerk went there; but he tells me that he looked at the share register (which is the only book he was entitled to see), and that it was not made up, and so imperfect that it was no use. That was not satisfactory. Then there was something else they had heard on the subject, namely, in purchasing machinery the Mineral Corporation were offering no cash at all, but long dated bills and the shares of the company. That did not show they were a very strong company. That was the company which Mr. Crofts wanted them to be connected with. Mr. Crofts would show them the way to do business, but as a specimen of the loose way in which Mr. Crofts did business he might mention that he had sent in proxies for 1994 shares, all of which were invalid, because they were sent in to the office 24 hours too late. The directors had received proxies, exclusive of their own votes, for 486 shares. He contended that for the purpose of getting proxies Mr. Crofts had misrepresented the real state of affairs with regard to the number of the unissued shares which had actually been paid upon, and had even misquoted the directors' circular to suit his purpose.

Mr. Crofts said any offer of the Mineral Corporation would have been a cash offer. He protested against the remarks of Mr. Murchison as unwarrantable. As regarded his opinion of the mine some time ago, he simply wrote what he believed to be the case at the time the opinion was written.

THE SECRETARY: These statements are made in the papers, and now you repudiate and deny them. A man who will deny his own statements will deny anything. Mr. COOKE said it would be well to let the matter drop now, as Mr. Crofts had withdrawn his resolutions. He would ask Capt. Nottingham whether anything could be done to improve the dressing of the ore.

Capt. NOTTINGHAM said the lead ore was dressed to a percentage which all practical men believed to be the best for ore of this description. The blende they could not make a good sample of, as the quality would not admit of it. The percentage of waste of lead was very small.

After some further conversation, on the motion of Mr. HICKES, seconded by Mr. WATSON, the following resolution was passed:—"That this meeting has every confidence in the present management, including Capt. Nottingham—the only hands held up against it being those of Mr. Crofts and another shareholder. A vote of thanks to the Chairman closed the proceedings.

WEST TOLGUS.—A two-monthly meeting was held at the mine on Tuesday, Mr. Richard Taylor presiding. The accounts showed a profit of 5780. on the two months' working, which, added to the credit balance of 19000. from the previous account, made a total of 24780. A dividend of 25s. per share was declared, and 12990. carried forward to next account. The report of the manager and agents (Capt. Hancock, G. H. G. and Vigney) stated that in Taylor's shaft 8½ ft. had been sunk last month by the boring machine, and it was calculated that 10 ft. would be sunk by it this month. Twelve men were now employed with the boring machine, where previously twenty men had been sinking. The various points of operation were progressing favourably. The amount of returns for the next two months already realised was 32770. and was estimated that the costs for the two months would be about 1500. less than those charged. Capt. Hancock, the manager, said they would very likely soon introduce into West Tolgus a machine for lifting the stuff from level to level by compressed air, which would greatly facilitate the raising, and effect a saving in cost. Five points of operation in the mine are being worked at an aggregate of 1830. per fathom for copper. Two other points are producing generally 5 and 8 tons of copper ore per fathom. Some of the ore raised is very good, the produce being fully fourteen.

HUGHES'S LOCOMOTIVE AND TRAMWAY ENGINE-WORKS (Limited).—The general meeting of shareholders was held, on Friday, at the offices, Copthall Buildings, Mr. T. M. Mackay presiding. The report stated that the profits, after paying establishment charges and all current trade expenses, and writing off 3810. from preliminary expenses, &c., amounted to 54000. Of this, 21477. had been absorbed by the interim dividend, and from the balance the directors recommended a dividend of 7s. per share, making a total distribution of 8 p. cent. for the year. There would remain 2477. to be carried forward. They had now nine engines employed in working the Vale of Clyde tramways under a contract with the Tramways Company, and the evidence given before the recent House of Commons Committee was conclusive proof of their success in practical work. They had also supplied three engines to the Swansea Tramway Company and one to the Wantage Company, and an important order was in execution for New Zealand. Successful experimental trials had been made within the past few months at Cologne, Hanover, Hamburg, and Bilbao, and a specimen engine was now being exhibited in the British annex of the Paris Exhibition. The Chairman said their profits on their ordinary manufactures had been comparatively small through the stagnation of trade, while the development anticipated in the sale of tramway engines had been delayed by the general postponement of parliamentary authority to employ mechanical power on tramways. He believed that next year this privilege would be fully granted. An extensive and important addition had been made to their business by the erection of works for building tramway cars. The report was unanimously adopted, and subsequently a resolution was passed authorising the issue of the remainder of the share capital, which was required to extend their car business, and to enable them to lend out their engines to tramway companies who desired to hire them.

[For remainder of Meetings, see to-day's Supplement.]

The creditors of the Swansea and Resolven Coal Company are to meet on their claims by Sept. 12.

## WATSON BROTHERS' MINING CIRCULAR.

Ten years ago the weekly information which had previously been published for a great number of years in WATSON BROTHERS' Mining Circular was transferred to the columns of the *Mining Journal*, with the following announcement; which is now reproduced in consequence of the numerous letters and enquiries handed to them of late in reply to one which appeared in the *Journal* on the Clementina Mine.

In the year 1843, when mining was almost unknown to the general public attention was first called to its advantages, when properly conducted, in the "Compendium of British Mining," commenced in 1837, and published in 1843, by Mr. WATSON, F.G.S., author of "Gleanings among Mines and Miners," "Records of Ancient Mining," "Cornish Notes" (first series, 1862), "Cornish Notes" (second series, 1863), "The Progress of Mining," with Statistics of the Mining Interest, annually for 21 years, &c., &c. In the Compendium, published in 1843, Mr. WATSON was the first to recommend the system of a "division of small risks in several mines, ensuring the success in the aggregate," and Messrs. WATSON BROTHERS have always a selected list on hand. Perhaps at no former period in the annals of mining has there been more peculiar need of honest and experienced advice in regard to mines and shareholding than there is at present; and from the lengthened experience of Messrs. WATSON BROTHERS they are emboldened to offer, thus publicly, their best services and advice to all connected with mines and mining.

Messrs. WATSON BROTHERS are daily asked their opinion of particular mines, as well as to recommend mines to invest or speculate in, and they give their advice and recommend mines to the best of their judgment and ability, founded on the best practical advice they can obtain from the mining districts, but they will not be held responsible, nor subject to blame, if results do not always equal the expectations they may have held out in a property so fluctuating as mining.

WATSON BROTHERS,  
MINEOWNERS, STOCK AND SHARE DEALERS, &c.  
1, ST. MICHAEL'S ALLEY, CORNHILL, LONDON.

The great extension of mining business, the difficulty so often complained of by country shareholders in getting accurate and disinterested information as to the state of Cornish and Foreign Mines, and of the financial and real position of mining companies generally, have induced Messrs. WATSON BROTHERS to make their Circular now published in the *Mining Journal* more extensively known, and to state—

That they issue daily to clients and others who apply for it a Price List (as supplied to most of the London and country papers), giving the closing prices of Mining Shares up to Four o'clock.

They also buy and sell shares for immediate cash or for the usual fortnightly settlement in all Mines dealt in on the Mining and Stock Exchanges, at the close market prices of the day, free of all charges for commission. They deal also, on the same terms, in the Public Funds, Railways, Telegraphs, and all other Securities dealt in upon the Stock Exchange.

Having agents in all the mining districts, they are constantly getting mines inspected for their own guidance, and will also obtain special reports of any particular mine for their clients, for the inspecting agent's fee of 25 s.

A PARISIAN.—There was a clerical error in our last. The statutory meeting under the Limited Liability Act must be held within four not three months. The cost-book, under which even Welsh mines were conducted years ago, but which is now confined to Cornwall and Devon, is a mutual partnership, each shareholder being individually liable for the debts, but having the power to relinquish his shares, and get rid of his liability by paying up his proportion of debts to the date of his relinquishment. If a holder transfers his shares to a minor or to a man of straw, he does not get rid of his liability in case of liquidation. Forfeiture of shares does not release a shareholder from calls which may have been made previous to forfeiture.

LEADHILLS.—The low price of shares is owing chiefly, as we understand, to the low price of lead, which is seriously affecting large producing mines. When metals will improve no one can say, though everyone hopes for it shortly.

PANT-Y-MWYN.—We have received several letters this week, the principal information required was, however, given in the City article of the *Journal* last week. To other points referred to we can only reply privately.

X. Y.—An adit mine is drained naturally by adits or levels driven into a hill, and is worked cheaply, without pumping or other expensive machinery or shafts. Coals in some mines form an item of some thousands of pounds per month.

D'ERESBY MOUNTAIN AND THE VALLEY.—Our proposition here was not, strictly speaking (as our correspondent thinks), a "division of the sett," inasmuch as the Valley portion has only lately been obtained and added to the original grant. All that the company want is the use of No. 5 adit to drain the water many fathoms below the stope in the No. 4, and open out the lode at that greater depth in the mountain. To work the lode below the No. 5 in the valley would require water-wheel for pumping and other machinery. The agents strongly recommend the Valley to be worked, and our proposition, if carried out, would, we are satisfied, result favourably for both mines.

BULTAFALL.—Mr. Batters's letter in last week's *Journal* gives the information, or most of it, promised in our last.

HAFNA.—We understand in forking the water from a shaft below the No. 1 adit a good lode of lead has been found, valued by the agent at 2 tons per fathom.

MINERAL CORPORATION.—We understand that the gentleman against whose name 274 shares stand at the Registrar's office, and to which we referred in our last, only signed the articles for 10 shares. Also that the 500 shares at 10s. each to be given to him for his services were not included in the 807 shares issued.

MORFA DU.—Already 25 tons of blue stone have been broken from the lode just cut into.

PITANQUI (Gold).—We hope to give the desired information next week. All we know at present is that the shares are chiefly held in Liverpool by the Santa Barbara shareholders, that gold is expected daily, and that 6s. 6d. per share has been paid up. They are at a premium, and likely, we are told, to go much higher.

SATURDAY, AUG. 24.—Market very quiet. Tin shares weaker. Carn Brea, 30 to 32½; Tincroft, 4½ to 7½; South Frances, 3½ to 4; Agar, 3½ to 4; Grenville, 2½ to 3; Aberllyn, 10 to 12; D'Erresby Mountain, 80 to 90; D'Erresby Consols, 10 to 11; Great Laxey, 18½ to 19½; Van, 18½ to 19½; Roman Gravel, 7½ to 7¾; West Tolgus, 15½ to 16; Tankerville, 3½ to 3¾; Parys Mountain, 7s. to 9s.; Pateley Bridge, 4½ to 4¾.

MONDAY, AUG. 25.—Market continues inactive. South Frances shares firmer. D'Erresby Mountain, 80 to 90; D'Erresby Consols, 10 to 11; Leadhills, 2½ to 3; Van, 18½ to 19½; Great Laxey, 18½ to 19½; Roman Gravel, 7½ to 7¾; West Tolgus, 15½ to 16; Tankerville, 3½ to 3¾; Parys Mountain, 7s. to 9s.; Pateley Bridge, 4½ to 4¾.

TUESDAY, AUG. 27.—There is very little business doing, and prices about the same as yesterday. Wednesday, Aug. 28.—Market continues very quiet, and prices for the most part are nominal. Aberllyn, 10 to 13; Clementina, 1½ to 1¾; Carn Brea, 30 to 32½; Devon Consols, 2 to 2½; Dolcoath, 24 to 26; D'Erresby Mountain, 80 to 90; D'Erresby Consols, 10 to 11; East Van, 4 to 4½; Grogwinlon, 2½ to 2¾; Great Laxey, 18½ to 19½; Leadhills, 2½ to 3; Pateley Bridge, 4½ to 4¾; Penrith, 3s. to 3½; Roman Gravel, 7½ to 7¾; Rookhope Lead, 3½ to 3¾; South Condurrow, 10½ to 11; South Frances, 3½ to 4; Tankerville, 3½ to 3¾; Tincroft, 5 to 7; Van, 18 to 19; West Chiverton, 5 to 7; West Tolgus, 15½ to 16; Agar, 3½ to 4; Grenville, 2½ to 2¾; Pever, 6 to 6½; Wye Valley, 1½ to 2; West Wye Valley, 2½ to 3.

THURSDAY, AUG. 29.—Market continues very dull, and prices are merely nominal. D'Erresby Mountain, 80 to 90; Van, 18 to 19; Great Laxey, 18½ to 19½; Aberllyn, 10 to 13; Roman Gravel, 7½ to 7¾; D'Erresby Consols, 10 to 11; East Van, 4 to 4½; Grogwinlon, 2½ to 2¾; Great Laxey, 18½ to 19½; Leadhills, 2½ to 3; Pateley Bridge, 4½ to 4¾; Penrith, 3s. to 3½; Roman Gravel, 7½ to 7¾; Rookhope Lead, 3½ to 3¾; South Condurrow, 10½ to 11; South Frances, 3½ to 4; Tankerville, 3½ to 3¾; Tincroft, 5 to 7; Van, 18 to 19; West Chiverton, 5 to 7; West Tolgus, 15½ to 16; Agar, 3½ to 4; Grenville, 2½ to 2¾; Pever, 6 to 6½; Wye Valley, 1½ to 2; West Wye Valley, 2½ to 3.

FRIDAY, AUG. 30.—Market very dull. Van, 18 to 19; Great Laxey, 18½ to 19½; D'Erresby Mountain, 80 to 90; Aberllyn, 10 to 13; Roman Gravel, 7½ to 7¾; D'Erresby Consols, 10 to 11; East Van, 4 to 4½; Grogwinlon, 2½ to 2¾; Great Laxey, 18½ to 19½; Leadhills, 2½ to 3; Pateley Bridge, 4½ to 4¾; Penrith, 3s. to 3½; Roman Gravel, 7½ to 7¾; Rookhope Lead, 3½ to 3¾; South Condurrow, 10½ to 11; South Frances, 3½ to 4; Tankerville, 3½ to 3¾; Tincroft, 5 to 7; Van, 18 to 19; West Chiverton, 5 to 7; West Tolgus, 15½ to 16; Agar, 3½ to 4; Grenville, 2½ to 2¾; Pever, 6 to 6½; Wye Valley, 1½ to 2; West Wye Valley, 2½ to 3.

THE LLANGAN LEAD MINING COMPANY.—In the Court of Chancery, on Wednesday, before Mr. Justice Manisty, sitting as vacation Judge, in re Llangan Lead Mining Company (Limited), a motion was made to continue an interim order restraining issue of execution upon judgment recovered in the Common Pleas Division against the company. Counsel who applied said that last week the order was obtained restraining a creditor from issuing execution. There was a voluntary winding-up under a resolution confirmed on Aug. 15. The writ was issued on July 20 for 290. That was served on the 23rd, and another was made on Aug. 13, giving liberty to the company to pay the money into Court, or, in default, judgment for the plaintiff. The money was not paid, and on the 21st petitioner applied to his lordship for an interim order. Execution was issued on that day, and the Sheriff seized the next day, which was two days after the commencement of the liquidation.

The counsel who opposed said the applicant was not entitled to the order, as it was a voluntary liquidation. Where a liquidation was going on under the supervision of the Court a judgment creditor would be allowed to proceed if he had been delayed by the unfair dealing of the Court. There had been no unfair dealing of the Court in this case. His lordship thought the order must be continued until further order.

## Registration of New Companies.

The following joint-stock companies have been duly registered:—

SEVERN STEEL, IRON, AND MINERAL COMPANY (Limited).—Capital 200,0000. in 200,000 shares. To acquire the Scudley Furnaces, Sully Point, King's Moor, Noxon Park, and Tingle's Level Mines, in the Forest of Dean, together with the property of the Western Iron Company (Limited). The subscribers are—R. M'Ewen, 15, Cross street, Manchester, stockbroker, 124; T. Kirkwood, Yeo Vale, Bideford; S. de Vere Beaulieu, 2, Copthall Buildings, stockbroker, 1; Charles Grundy, 26, Budge-row, solicitor, 1; A. D. Morison, Bradley House, Newham, Gloucester, ironmaster, 124; J. M. Kirkwood, Gow Court, Maldenstone; G. T. Browne, 26, Budge row, 1. The directors are Messrs. M'Ewen, T. Kirkwood, and A. D. Morison.

SOUTH METROPOLITAN TRAMWAYS COMPANY (Limited).—Capital 100,0000. in 100,000 shares. To take over the undertaking and business of the London Tramway Company (Limited). The subscribers are—G. Thomson, Larbert, N.B., 1000; J. Murlison, Glasgow, 1000; T. Sellar, Bagshot, 200; R. Barret, Club Chambers, Regent street, 800; J. P. Sellar, Prince's Gate, W., 500; J. M. Walker, 9, Old Broad-street, 500; J. Demestown, Bartholomew-lane, 200.

R. R. JACKSON AND COMPANY (Limited).—Capital 80,0000. in 10,000 shares. To take over the business of R. R. Jackson and Brothers, of Blackburn, manufacturers. The subscribers (who take one share each) are—G. B. Denhurst, Manchester; W. Brand, 37, New Broad-street; A. Brenner, 11, New Road-street; R. R. Jackson, Blackburn; C. P. Henderson, Manchester; A. J. Jackson, Blackburn; T. Brocklebank, Liverpool.

SCHOONDOOR SUGAR PLANTATION COMPANY (Limited).—Capital 64,0000. in 1000 shares. To take over the Schoondoor sugar estate, Demerara. The subscribers are—E. G. Barr, 75, Holland Park, 312; G. L. Barber, 36, Mark-lane, 97; H. N. Woodhouse, 30, Mining-lane, 1; P. Keith, 113, Leadenhall-street; G. C. Clairmonte, Mining-lane; D. Wylie, Leadenhall-street; J. G. Woodhouse, 38, Mining-lane, 1.

SAMUEL SMITH AND COMPANY (Limited).—Capital 50,0000. in 1000 shares. To take over the Horton Dyeworks, Bradford, together with the business of Messrs. S. Smith and Co. The subscribers (who take one share each) are—S. M. Smith, Calverley House, near Leeds; C. Telford Smith, Horton; R. H. Smith, Halifax; W. Hines, Duckworth-lane, Bradford; S. Woodhead, Bradford; J. J. Colby, 13, Parliament street, S.W.

SOUTH CAMBRIAN MINING COMPANY (Limited).—Capital 50,0000. in 10,000 shares. To acquire the property formerly known as the Camddwr Back, but now called the South Cambrian Mine, in the township of Elerel, Cardigan. The subscribers are—C. M. Thomas, 5, Strand-street, Liverpool, mining engineer, 100; H. B. Stringer, 81, Darncombe-street, Moss Side, Manchester, accountant, 50; Thos. Walmley, Llansauddell, Montgomeryshire, mineral proprietor, 50; John Woolcock, Holwell, mineral agent; J. Custice, Penyalve, Holwell, mine captain; W. L. Mitchell, Birkenhead, engineer, 20; E. B. Rigby, Ivy Cottage, Halkin, no cash, 50.

LISBURN SYNDICATE (Limited).—Capital 14,0000. in 100 shares. To acquire the Froegoch Mine, situated on the property of Lord Lisburne. The subscribers (who take one share each) are—William Bowman, Middleton-by-Youlgreave, Bakewell, Derbyshire, lead miner; Thos. Kent, Southampton, gentleman; H. Davey, 80, Cornhill, stockbroker; W. Brooks, Croft House, Croft, near Lancaster, esquire; Alex. Kerly, 14, Great Winchester-street, solicitor; George Ross, 80, Cornhill, stockbroker; W. M'Neile, 58, Aldersgate street, vestry clerk. The directors are Messrs. W. Bowman, H. Davey, and Thos. Kent.

HAFUFALE COFFEE COMPANY.—Capital 200,0000. in 20,000 shares. To acquire and work coffee estates in Ceylon. The subscribers are—F. Pittman, Edinburgh, 250; Sir James Ferguson, bart., Kilkerran, Ayr, 250; A. Buccallan, 44, Melville-street, Edinburgh, 100; John Buchanan, Middleton Hall, N.B., 200; W. H. Murray, 78, Great King-street, Edinburgh, 50; M. H. Thomas, Oakfield, near Keswick, 200; A. Bryan, The Cottage, Foot's Cray.

MALLORE PROPELLER COMPANY (Limited).—Capital 24,0000. in 500 shares. To acquire patent rights in connection with a propelling apparatus. The subscribers (who take one share each) are—Samuel Owens, 22, Whitefriars-street; J. T. Peacock, Sudbury House, Hammersmith; J. Richards, 83, Earl's Court; W. R. Brinkell Carter, Wimborne-street; C. E. Owens, 22, Whitefriars-street; W. Francis, 7A, Red Lion court; A. F. Conant, 15, St. Bride street.

EAST OF ENGLAND FIRE OFFICE (Limited).—This company, which is limited by guarantee, is formed to undertake the general business of a fire insurance company. The subscribers, all of Hull, are—W. Bromhead, W. T. Walker, G. C. Harrison, J. E. Davy, J. Montgomery, Abraham Moss, and J. Kelly.

## AUSTRALIAN MINES.

PORT PHILLIP AND COLONIAL (Gold).—July 6: The quantity of quartz crushed on both the companies' and tributors' accounts for the four weeks ending June 19 was 4663 tons; pyrites treated, 80 tons; total gold obtained, 1592 ozs. 12 dwts. Receipts (including 19980. 15s. 1d. obtained from tributors), 36870. 8s. 10d.; payments (including 3070. paid for firewood), 21790. 10s. 6d.; profits, 15670. 15s. 4d., added to which was previous balance of 15770. 12s. 11d., making an available balance of 30850. 11s. 3d. The amount divided between the two companies was 15000. the Port Phillip Company's proportion of which is 8450.; the balance carried forward was 17850. 11s. 3d.; remittance, 7500.

—Telegram received dated the 23 inst.: "Month ending Aug. 14. Gold obtained from companies' quartz, 518 ozs.; gold obtained from tributors' quartz, 13200. From profit, 18720. remittance, 10000.

ENGLISH AND AUSTRALIAN (Copper).—July 20: The stock of coals at Port Adelaide was 382 tons, besides that afloat. The furnaces at Port Adelaide were all out for stock taking. At Newcastle they were finishing up to let out the furnaces, also for stock taking. Since the date of last advices 284 tons of copper had been shipped.

SCOTTISH AUSTRALIAN.—The directors have advices from Sydney, dated July 6, with reports from the Lambton Colliery to the 4th of that month. The sales of coals for the month of June amounted to 20,957 tons, making for the half-year ending the 30th of that month a total vent of 99,463 tons.

ENGLISH-AUSTRALIAN (Gold).—Capt. Ralsbeck, Fryerstown, July 8: We have extended the drive in the 420 ft. level south 45 ft.; distance from the shaft, 26 ft. The quartz mentioned last month as cropping up did not turn out much stone; while passing through it we broke a few tons, and saw gold in it, but not sufficient to crush it separate. There is no stone in the end at present. We are in a strong bar of country. We have extended the drive in the 320 ft. level 36 ft. south; distance from prospecting shaft 116 ft. During the month we passed through a small block of stone showing gold, although not sufficient to crush it separately, but there is an improvement in the lode for the last few feet. We have crushed from the stope 65 tons of stone, from the end of the 320 drive 28 tons, and from 420 ft. 14 tons, equal to 106 tons of quartz, giving a total of 22 ozs. of retorted gold. We have commenced a rise in the 320 ft. level, 37 ft. south of the prospecting shaft, for the convenience of working the stopes when connected, and of proving the stone further south; the rise is up 19 ft. The stone in the stope is looking as well as present as it has for the month. Should we meet with stone in either of the ends, which is probable, we shall expect better returns next month.

YORK PENINSULA.—The directors have received advices from the committee of inspection at Adelaide, with reports from the Kurilla Mine to July 8. The following are extracts from Capt. Anthony's report.—Kurilla Mine: Hall's engine and shaft is sunk to the 55 and timbered. It is my intention to drive 10 fms. east and 4 fms. west, and then resume sinking the shaft 2 fms. deeper, stop the western drive, and drive east simultaneously with the sinking. In the 45, west of Hall's shaft, I am driving on a good wall running straight for Grainger's shaft. The stope in the 45 east continue to produce 4 tons of 20 p. cent. ore per fathom.—Morphet's Lode: The engine shaft is over 5 fms. below the 30, the contractors having considerable advantage in sinking from the intersection of a north branch with the main lode. This junction is also favouring the lode in the production of ore, rocks of fully 1 ton of 20 p. cent. ore, have been blasted up since my last report. I would say, however, that the ends of the shaft are not so good as the middle portion, although all the ground being sunk through will make average tribute ground. The 30 east is now 35 fms. from the engine-shaft, and the second winze, which will come down on the end of the drive, will be holed in a few days' time. With the exception of two short pieces of ordinary ground, the whole of this drive has passed through tribute ground, or (say) 30 fms. of it, leaving 270 fms. of lode to stope for ore, which at 3 tons per fathom will yield 810 tons of 15 p. cent. ore. The 20 east is driven to within about 8 fms. of the eastern boundary line, and the slide met with at this point, in the 10, has been reached. In the 10 the slide displaced the ore. In the 20 the lode has gone through the slide, and is 1 ft. wide, composed of good ore, a little mudstone, with quartz and pyrites.

I have put in a section of a strong stull or gallery in this drive below No. 1 trial shaft, and am stopping some rich ore, and expect to obtain a large quantity. I may say that the end of the 30 is now within about 18 fms. of this ore, and will be in under it in about three months, as the ore dips west. I am hopeful that the 36 fms. of lode lying between the 30 and the eastern boundary will be about the best portion of this lode. Of course I can only speak of it in general terms, but the state of the lode at the 10, and its increased value at the 20, warrant me in saying so much. Having out a paying branch by driving north at the 10, and having driven 4 fms., through paying ground, I have put four men to sink a trial shaft from the surface towards the 10, by which to ventilate the said branch, and facilitate the removal of the ore, and as soon as I hole to the 10 I shall sink down on the rise, and thus ventilate the whole from the surface to the 20 at very little cost. And as there is every chance of this north branch making ore at the 50, it will be easy when the proper time arrives to render it workable at that deeper point by continuing the same operations. I have set the whole of the ground in the 30 west lying between the winze and within 5 ft. of the engine to stope. The contract will make up about 126 tons. of lode, which I hope will yield 3 tons of 15 p. cent. ore per fathom, or 378 tons. This lode continues to open well and satisfactorily.—Ore Returns: On hand at June 30 last 303 tons of 17 p. cent. ore and 730 tons of dredge ore of 5 p. cent. A shipment of 150 tons per Beltana and Holmesdale was being made.

ECONOMISING FEUL.—The invention of Messrs. THORP and SUMMERSKILL, of Manchester, consists of an adjustable or fixed diaphragm made of fire-clay or other suitable material, and which is placed in the furnace or flue of any boiler, and if especially applicable to locomotive steam-engines. One or more diaphragms consisting of one or more sections is or are placed upon a movable centre, either horizontally or otherwise, with or without other stationary parts, across the furnace or flue, thus causing the heat to be distributed to the surfaces of the boiler before making its escape into the chimney, as well as ensuring a more perfect combustion of the fuel.



## Mining Correspondence.

## BRITISH MINES.

**ABERDAUNANT.**—S. Toy, Aug. 28: We have now driven the deep adit cross-cut north 16 ft. the favourable change in the ground last week did not continue long, and at present it is much the same as when we commenced to drive.

**ABERDAUNANT.**—J. Roberts, Aug. 28: We have laid down the tramroad up to the point we had previously cleared, being about 70 fms., and are again securing the level. The great blende lode is much the same as I have been reporting. I will send you a complete plan of the mine in a day or two, which will give you to understand our points of operation exactly.

**ASSETON.**—G. Rickard, Aug. 28: The following are the prices at which pitches and bargains are now working:—Asseton: The 50, east of boundary, by two men, at 40s. per ton for lead and 45s. per fathom for driving; the lode yields ore, with indications of improvement. No. 1 pitch over this level, by four men, at 6s. per ton. No. 2, by four men, at 10s. per ton. No. 1 pitch, below the 40, east of Brown's, by two men, at 11s. per ton. No. 1 pitch, below the 40, east of Brown's, by two men, at 11s. per ton. No. 1 pitch, over the 50, west of Mawr's, by four men, at 11s. per ton. No. 1 pitch, over the 50, west of Mawr's, by two men, at 12s. per ton. No. 1 pitch, over the 20, south of Mawr's, on north and south lode, by four men, at 80s. per ton. No. 1 pitch, below the 8, at Gundry's, by three men, at 90s. per ton. No. 1 pitch, below the adit at Lindow's, by two men, at 120s. per ton. Two men and a timberman are engaged in repairs throughout half this time. West Asseton: The 40, east of boundary, by two men, clearing choke, securing level, &c., preparatory to driving the end. The 80, west of boundary, by four men, at 3s. per ton for lead, and 3s. per fathom; the lode is large and strong, &c., opening in the morning, we expect an improvement here. No. 2 pitch over this end, by four men, at 90s. per ton for lead. No. 1 pitch, below this level, by four men, at 8 s. per ton. The 60, west of boundary, driving by six men, at 90s. per fathom; opening tribute ground; there are strong indications of improvement in the lode. No. 1 pitch, over this level, by two men, at 1.0s per ton. No. 2, by two men, at 90s. per ton. No. 3, by four men, at 40s. per ton. No. 4, by four men, at 90s. per ton. No. 5, by four men, at 100s. per ton. We shall drive the 70 west directly we can spare the men. There are two men and a timberman engaged in repairs underground half time.

**BEDFORD UNITED.**—R. Goldworthy, W. Phillips, Aug. 29: The lode in the shaft sinking below the 18 is disordered by a floor of capel, but we think it is only temporary, its present value being 14s. per fathom for length of shaft. No other change to notice since last report.

**BLTWSY COED.**—H. T. Haley, Aug. 26: The end going west in shallow adit is looking very promising, and with as much per fathom as I have ever seen it. The end going east in this level is worth about 15 cwt. of lead per fathom, and the lode increasing in size. The lode in the winze is of about the same value as last week—18 cwt. per fathom. The deep adit end east is in a very congenial channel of ground for the production of lead, and I hope to be able to report a good improvement here shortly. Masons are getting on well with crusher wheel, and all other surface work being proceeded with as fast as possible.

**BITE HILLS.**—S. Bonnetts, P. Bonnetts, Aug. 24: The 30 west on the top lode is at present poor. The east end at the same level is worth 5s. per fathom. On the Pink lode the east end is improving, and worth 6s. per fathom. The north lode too in the 30 east end is also looking much better, and just now is worth 15s. per fathom. There are two or three small gossans in the end which make it somewhat hard, but both above and below those faults the lode is equally valuable.

**BODIDRIS.**—H. Hothkiss, Aug. 28: I have nothing new to report from this mine to day, as all points are much the same as when I informed you last, but good progress is being made in the different points, except in the easternmost shaft, where our progress has been somewhat retarded through the influx of surface water caused by the heavy rain which has been falling these last few days.

**BWELCH UNITED.**—N. Bray, Aug. 24: During the month we have completed the lode and penthouse in the 90, and are now in regular course of sinking below that level, at 18s. per fathom for month extent, but I am trying to agree otherwise for sinking in one bargain to the 100. The shaft from the 90 to the 100 has been carried down on the north part of the lode, leaving a portion untried to the south, which may be the main part, and will have to be proved hereafter by a short cross cut in the 90; the ground in the bottom of the shaft is a compact clay-slate, but only a small portion of the lode so far has been taken down. We are still clearing and securing the 60, east of Ritchie's shaft, and although not completed to the end I have taken the two men to open on the lode in the bottom of the level at point shown in the rough sketch enclosed herewith, and, of course, you will readily see that it is yet too premature for me to say the extent and value of the ore ground. There is now a good supply of water, and the machinery is in good working order.

**CAMBRIAN.**—Thomas Ghanville, Aug. 29: Esqair-fraith: Eastern Shaft: In the 70 yard level, west of shaft, the part of the lode we are now cutting out will produce 1½ ton of rich copper ore per fathom. In the 70 yard level, east of shaft, the lode is being cut through both north and south. The lode in the southern cross cut is composed of gossan, intermixed with lead ore, and that in the northern cross cut is composed of carbonate of lime and good stones of copper ore. In the 40, west of shaft, the lode is carbonate of lime and lead ore of a promising character. During the early part of next week we shall commence to send down a parcel of copper ore to Swansea for sale. Esqair-hir: The western shaft is now sunk to a depth of 10 yards, and is improving in every yard sunk through, and by the appearance of the lode I have every reason to believe that ere long we shall have cut into good ore ground. We are now preparing to drive a cross-cut south from the western adit level to intersect the great lode.

**CLOGAU.**—W. B. Davis, Aug. 1: The return of gold from Jan. 1, 1878, to date is 307 ozs. 2 dwts. 2 grs., obtained from 1 ton 12 cwt. 3 qrs. 6 lbs. of ore treated, which realised 979s. 14s. 4d. net. The total expenses at the mine, including all bills and rents, amount to 892s. 7s. 6d., which, after deducting 1-30th royalty on the gold sales, would leave a balance of 813s. 9d. in favour of receipts. In No. 7, at the end of June, we cut into a pocket of rich gold, most of the return for July being from a few pounds of ore obtained here in June. In July the lode came into a pinch, and did not produce so well as shown in the August return. We are now through this, and the lode is improving. On the branch lode we have been continuing the driving of the level to the intersection of a run of gold met with in the western portion of the workings above. We have cut the visible gold, and propose to continue the level some fathoms further, when we shall have this place available for stopping. Nos. 4 and 5 shafts have been pumped out nearly to the 15 by the windmill, which continues to pump satisfactorily, and we have now added to it a gear, which on trial proved a success. We expect next month to be able to get into the stopes. The 5 west has been driven 1 ft. 1 in.; as soon as the ventilation is re-established we shall push this point with full strength of men.

Date.	Weight of ore in lbs.	Office weight of gold in oz. dwt. grs.	Amount.	Remarks.	Smelting weight.
January	1247	40 0 0	2172 4 7	No return.	41 288 ozs.
February	773	59 0 0	199 12 3		51 288 ozs.
March	773	59 0 0	199 12 3		46 90 ozs.
April	300	9 11 12	24 17 4		9 55 ozs.
May	500	101 9 0	320 14 1		50 65 ozs.
June	408	41 5 10	108 0 6		41 250 ozs.
July	3674	297 14 4	307 ozs. 2 dwts. 2 grs.		

**COMBARTIN.**—John Comer, Aug. 29: Since our last advice we have put a pair of men to drive south-east and a pair to drive north-west on the course of the lode which was intersected in the adit cross-cut. The lode at the point where it was intersected is about 3 ft. wide, composed of blende, quartz, kyllas, spotted with lead and blende, and seams of mandle, from 2 to 3 in. thick, running along on the hanging side; a very promising-looking lode. In the adit cross cut north the ground is of much the same character as when last reported on. In the cross cut driving south from the 15 east the ground is favourable for progress, and we calculate to reach the south lode by the end of next week.

**COURT GRANGE.**—J. G. Green, Aug. 29: Setting list for ensuing two months: The rise in back of the 30, to meet No. 15 winze, to six men, at 10s. per fathom; the lode is worth 18 cwt. per fathom. To sink No. 15 winze below the 14 east, to six men, at 11s. per fathom; the lode is worth 18 cwt. per fathom. To sink No. 15 winze below the 14 east, to six men, at 11s. per fathom; the lode is worth 18 cwt. per fathom. I hope to effect a communication in two months, when this part of the mine will be well ventilated for stopping, &c. The 14, to drive west, to four men, at 6s. per fathom; the lode is carrying strings of lead; not quite so good as last reported, but a promising end. No. 2 stopes, west of footway, in back of the 14, to four men, at 6s. per fathom; lode worth 1½ ton per fathom. A stopes in back of the intermediate level, east of footway, to four men, at 6s. per fathom; lode worth 1 ton of good quality ore per fathom. All other bargains have been stopped, and the men removed to complete the Broglin pool, so as to secure as much water for dressing purposes as we can with as little delay as possible. We have three or four months' supply of stuff ready broken on surface, and the mine is full. We cannot go on drawing until we clear some of the stuff away. The dressing machinery has now made a fair start, and is working splendidly. If the present supply of water continues we shall be in a position to sample a good parcel of ore in a few weeks' time. No effort shall be wanting to effect this.

**CWM DWYFOR (Pensarn Mine).**—J. Ridge, Aug. 29: Morgan's shaft has been sunk 4 fms. since we commenced, making the total depth from surface 17½ fms. The lode is from 3 to 4 ft. wide, composed of slate, spar, and some strong spots of lead ore in the east end. The mixture of lead ore in the west end of the shaft referred to in my last report has dipped west out of the shaft. I am in hopes that the spots of ore we have in the east end are the beginning of another pipe of ore coming in in that end.

**CWMYSTWITH.**—Aug. 28: There is no change worthy of remark in any of our stopes or pitches since our last report. In Mitchell's cross cut driving north the ground is getting damp, and another branch about 3 in. wide has been cut through composed principally of spar; the ground has also been tighter this week. Everything is in good working order, and we have a good supply of water.

**D&BROKE.**—J. Phillips, August 28: Wilson's shaftmen are working away steadily on their contract of 9 ft. to complete the sinking to the 65. The stopes east of shaft at the 65 keeps to about its usual value of 12 to 15 cwt. of lead per fathom, and a trial stopes west of shaft about 10 cwt. per fathom. The stopes are proving a section of unwrought ore ground up to the 35. The lode in the 25 driving east is 3 ft. wide, composed of kyllas, quartz, and sulphur, with good stones of lead ore, and a very kindly appearance. Other underground work is going on as usual. The machinery is in good order, with an ample supply of water. I intend to sample 20 tons of lead ore on Saturday next.

**DERESBY CONSOLS.**—J. Roberts, Wm. Sandoe, Aug. 29: In cross-cut towards Cobblers lode we are progressing as fast as the nature of the ground will admit. The east and west lode in this end is about 1 ft. wide, and still very wet and rough, giving us reason to expect an improvement shortly. Owen's lode: The lode of blende is increasing in size, and the whole lode more sparry and kindly.—Gorse Heading: This keeps about the same as it was last week—pinched rather small.

**DERESBY MOUNTAIN.**—John Roberts, William Sandoe, August 29: No. 1 Adit: There is a nice looking branch of lead coming in the bottom of the end here—altogether it is a very pretty lode, and very similar to what we reported last week.—No. 3 Adit: But little has been done on the lode here this week, as the men have been engaged lengthening the tramway up to the end, and also on the tip.—No. 4 Stopes: The middle of the stopes is not quite so well as it was last week, but the part at the end is improved, so that the whole stopes is against the other stopes in much the same value.—No. 5 Adit: We have finished cutting the

pit at the bottom of No. 3 shaft, and cleared through the choke about 3 or 4 yards. We want to get forth a little from the shaft before fixing the horse pulley that we have spoken about. When this is done it will greatly facilitate the getting up of the stuff. The surface work is getting on very well, and we hope and believe that we shall get to work by the time we stated.

**DERWENT.**—John Morpeth, Aug. 26: With this will be found the list of bargains set here on Saturday last, with the estimate of ore, &c.—Jeffries' Shaft: Middle Vein: The 75, 78 fms. east of shaft, continues by the side of the vein. This vein, which is being stripped down in the 95 some 8 fms. behind the present end, yields 24 cwt. of ore per fathom. Over this level we have five stopes following the level—No. 1 is 6 ft. wide, worth 24 cwt. of ore; No. 2 is 5 ft. wide, worth 13 cwt.; No. 3 is also 5 ft. wide, worth 14 cwt.; No. 4 is 6 ft. wide, worth 20 cwt.; and No. 5, also 6 ft. wide, looks well, and produces 35 cwt. of ore per fathom. The 93, 145 fms. west of shaft, continues poor—vein 2 ft. wide. The vein in the stopes in back of this level is almost of a uniform width—4 ft. No. 1 stopes is becoming more hopeful, at present worth 6 cwt. of ore per fathom. No. 2 produces 15 cwt. No. 3, 15 cwt. No. 4, 15 cwt. No. 5, 11 cwt.—Sun Vein: The stopes over the 70, 10 fms. west of shaft, looks better; the vein is 3 ft. wide, yielding 9 cwt. of ore per fathom. The 70 east, 23 fms. east of shaft, is 4 ft. wide, and produces 14 cwt.; and the stopes in back also yields 14 cwt. of ore per fathom.—Vein 3 ft. wide.—Westgarth's Shaft: Middle Vein: The 93, 90 fms. east of shaft, is in a large vein; the vein here is rich, but as we are taking only about 1 ft. in width of the ore part we cannot give its full value; for 1 ft. wide the level yields 15 cwt. of ore per fathom. The stopes in the back of the 74 are yielding 13 cwt. and 18 cwt. of ore respectively per fathom; average width of vein, 2½ ft. Drawing and dressing at full work, and reservoirs all well filled with water. We have set two men to cut sides over the 95, in the middle vein, east of Jeffries' shaft, which are yielding 20 cwt. of ore per cubic fathom.

**D&GREAT INSOLS.**—Isaac Richards, Aug. 30: New Shaft, New South Lode: The cutting of the shaft, which was commenced on the 19th, and sinking the shaft below this point has been resumed on the north part of the lode, a part of which being carried, 2 ft. wide, consists of capel, quartz, mandle, and some good quality copper ore. In the 190 east the lode is 6 ft. wide, composed of a very fine capel, quartz, pryan, peach, and copper ore, worth 1 ton, or 3½, and 5 tons of mandle per fathom. In the 190 west the lode, part thereof being carried, 6 ft. wide, is composed of a very fine capel, quartz, peach, and copper ore, worth 7 tons, or 20½, and 7 tons of mandle per fathom. In Floyd's winze, in the bottom of the 175 east, the lode, 5 ft. of which being carried, is composed of capel, quartz, and copper ore, worth 10 tons, or 15½, and 5 tons of mandle per fathom. In the 175 west the lode is 4 ft. wide, composed of capel, quartz, or 12½, and 5 tons of mandle per fathom. In Hockaday's winze, in the bottom of the 175 east, the lode is 4 ft. wide, and worth for length of winze (9 ft.) 5 tons of copper ore and 5 tons of mandle per fathom. In the 160 east, on the south part of the lode, the lode is 4 ft. wide, composed of capel, quartz, pryan, and copper ore, worth 1 ton, or 3½, and 4 tons of mandle per fathom.

**DRAKE WALLS.**—M. Bawden, Aug. 17: At the last general meeting of shareholders it was resolved that the offer made by Mr. William Mathews to erect an engine and boring machine be accepted. It was then understood that it would take about four months to complete and to set to work the machinery as agreed. We have now much pleasure in informing the shareholders that the contract has been carried out in every respect, and that the engine and boring machine was erected and tested at the works of Messrs. Nicholson, Mathews, and Co. before it was removed to the mine, thereby saving considerable time and trouble. Whilst the boring machine has been in course of preparation and erection we stopped 10 fathoms of the 20 fathoms of ground referred to in last report as necessary to lower the level; we then left the lode standing to the north, and shall in future drive the level by the side of it. We commenced working the Ingersoll rock drills on July 23; during the first week working the one shift only of eight hours with all the men, to enable them to get a thorough knowledge of the work they would have to do. Since then we have been working two shifts a day, and we are able to do the increasing speed the men are attaining. The engine and boring machine have driven 10 fms. 6 in. in ground which would have cost from 77 to 90 per fathom by hand labour, and with more experience we shall considerably increase the speed of driving. We have attached winding-gear to the engine, and by a very simple contrivance we are enabled with two men to fill, tram, and land the stuff at surface, the wagon being brought up the shaft, lowered on rails, and tipped over the bank, thereby saving a very considerable expense, as the debris is only once handled. Finding our tributers could not do much above the shallow adit without great danger to themselves we determined their contracts, and set the two 12-horse steam engines on tribute at 13s. 4d. in 11. To work surface levings of the lode, the taker to bring the tin to a marketable state at his expense, and to get no benefit of any advance on tin ore, &c. The engine and boring machine have driven 10 fms. 6 in. in ground which would have cost from 77 to 90 per fathom by hand labour, and with more experience we shall considerably increase the speed of driving. We have attached winding-gear to the engine, and by a very simple contrivance we are enabled with two men to fill, tram, and land the stuff at surface, the wagon being brought up the shaft, lowered on rails, and tipped over the bank, thereby saving a very considerable expense, as the debris is only once handled. 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MESSRS. PELLY, BOYLE, AND CO.,  
SWORN METAL BROKERS,  
ALLHALLOWS CHAMBERS, LOMBARD STREET, LONDON.  
(ESTABLISHED 1849.)

**METAL MARKET—LONDON, AUG. 30, 1878.**

IRON.				£	s.	d.	£	s.	d.	TIN.				£	s.	d.	£	s.	d.					
Fig. 8ms, f.o.b., Clyde...	2	8	2	—	—	—	—	—	—	—	English, ingot, f.o.b...	63	10	—	—	—	—	—						
" " Soth, all No. 1 ...	2	9	0	8	10	0	—	—	—	—	" bars ...	64	10	—	—	—	—	—						
Bars, Welsh, f.o.b. Wales ...	5	5	0	5	5	0	—	—	—	—	" refined ...	65	10	—	—	—	—	—						
" " " in London ...	15	0	—	—	—	—	—	—	—	—	Australasian ...	58	10	—	—	—	—	—						
" " Stafford ...	6	15	0	7	10	0	—	—	—	—	Banca ...	61	0	62	0	0	0	0						
" " in Tyne or Tees ...	5	5	0	5	10	0	—	—	—	—	Straits ...	58	10	—	—	—	—	—						
" " Swedish, London ...	9	0	9	10	0	0	—	—	—	—	COPPER.													
Rails, Welsh, at works ...	4	15	0	5	0	0	—	—	—	—	Tough cake and ingot ...	66	10	0	67	10	0	0						
Sheets, Staff., in London ...	8	5	0	—	—	—	—	—	—	—	Best selected ...	68	0	0	68	10	0	0						
Plates, ship., in London ...	6	15	0	6	17	6	—	—	—	—	Sheets and sheathing ...	71	0	—	—	—	—	—						
Hoops, Staff. ...	7	10	0	—	—	—	—	—	—	—	Fiat Bottoms ...	74	0	—	—	—	—	—						
Nail rods, Staff., in Lon.	6	2	6	6	18	0	—	—	—	—	Wallaroo ...	70	0	—	—	—	—	—						
STEEL.										Burra, or P.C.O. ...									69	0	—	—	—	—
English, spring ...	13	10	19	0	0	0	—	—	—	—	Other brands ...	64	0	65	0	0	0	0						
" " cast ...	30	0	40	0	0	0	—	—	—	—	Chili bars, g.o.b. ...	61	5	0	—	—	—	—						
Swedish, keg ...	14	0	—	—	—	—	—	—	—	—	PHOSPHOR BRONZE.													
" " fag. ham. ...	15	0	—	—	—	—	—	—	—	—	Bearing metal ...	2112	0	—	—	—	—	—						
LEAD.										Other alloys ...									2120	0	0	140	0	0
English, pig, common ...	18	2	6	16	5	0	—	—	—	—	BRASS.													
" " " L.P. ...	16	10	0	16	10	0	—	—	—	—	Wire ...	7 1/2	—	8d.	—	—	—	—						
" " " W.B. ...	17	0	—	—	—	—	—	—	—	—	Tubes ...	7 1/2	—	—	—	—	—	—						
" " sheet and bar ...	17	5	0	17	10	0	—	—	—	—	Sheets ...	8 1/2	—	8 1/2	—	—	—	—						
" " pipe ...	13	0	—	—	—	—	—	—	—	—	Yl. met. sheath. & sheets ...	6	—	7	—	—	—	—						
" " red ...	19	0	—	—	—	—	—	—	—	—	Nails composition ...	8 1/2	—	9	—	—	—	—						
" " white ...	24	5	0	26	0	0	—	—	—	—	TIN-PLATES.* per box.													
" " patent shot ...	21	0	—	—	—	—	—	—	—	—	Charcoal, 1st quality ...	1	0	0	1	0	0	0						
Spanish ...	16	0	0	16	2	6	—	—	—	—	" " 2nd quality ...	0	19	0	1	0	0	0						
NICKEL.										Coke, 1st quality ...									0	16	0	—	—	—
Metal, per cwt ...	19	0	0	20	0	0	—	—	—	—	" " 2nd quality ...	14	0	0	16	0	0	0						
Ors, 10 per cent. per ton 24 ...	0	0	25	0	—	—	—	—	—	—	Black ...	18	0	18	0	18	0	18						
QUICKSILVER.										Black, Stan. or Glas. ...									11	10	0	12	0	0
Flasks of 75 lbs. ware. 7	0	0	—	—	—	—	—	—	—	—	at Liverpool ...	11	10	0	12	0	0	0						
SPELTES.										Black Taggers, 450 of ...									30	0	—	—	—	—
Bileas ...	18	0	0	—	—	—	—	—	—	—	14 x 10 ...	30	0	—	—	—	—	—						
English, Swansea ...	18	0	0	—	—	—	—	—	—	—	less for ordinary ; 10s. per ton less for													
Sheet zinc ...	21	10	0	22	10	0	—	—	—	—	Canada ; 1X 6s. per box more than 10 quoted above, and add 5s. for each X.													
										Turne plates 2s. per box below tin-plates of similar brands.														

\* At the works, 1s. to 1s. 6d. per box less for ordinary; 10s. per ton less for Canada; IX 6s. per box more than 10 quoted above, and add 6s. for each X. Terne-plates 2s. per box below tin-plates of similar brands.

REMARKS.—How long will business remain in its present unsettled and unsatisfactory condition is a question that is constantly being asked, but to which no definite answer is given, and for the best of all reasons—because everything is still enveloped in the greatest mystery and doubt. It is, therefore, quite impossible to predict with any degree of certainty or even probability as to when a permanent change for the better will take place. Hitherto holders and manufacturers of metals have stood the pressure upon them exceedingly well, and with commendable fortitude, although the depreciation more or less occasioned them tremendous losses. The market for metals has lately had a somewhat better success, especially have been very trying, more so, perhaps, than at any previous period, but every little additional squeeze now will of course be more severely felt than before, and will doubtless be attended with disastrous consequences. Thus it is that our markets at the moment assume such a gloomy and melancholy aspect. Nevertheless, bad as things have been and still are, yet if there could only be observed the slightest indication of a general decline up the tone would very soon alter from one of despondency to that of buoyancy. The increase at first in the amount of business might not be anything considerable, but the effect of a more hopeful future would be decidedly encouraging and stimulating, and buyers would regain confidence as once they begin to expect it. But the question is, how long will the present stagnation and permanent improvement yet awhile, or even in believing that this worst stage is past? People should give the subject their careful, earnest and serious consideration, and judge for themselves, and then they would doubtless be able to arrive at a sound and safe conclusion, but it is useless to look at things superficially. An unstable opinion is worth nothing. A person who is always chopping about from one side to the other seldom does any good, and may find himself eventually in an inextricable state of confusion, and surrounded with insurmountable difficulties. It is better, in fact, to form no opinion at all than to act impulsively and inconsiderately, but whatever the difference of opinion may be with regard to the future prospects, there can scarcely be any disagreement as to what ought to be done, and how to proceed, and to know what reliance can be placed upon the trade during the ensuing autumn.

There are many who think that owing to the universal inactivity in trade during the former part of the year, this autumn will be a flourishing and prosperous season, and they have been further strengthened in their views by the bountiful crops of corn and fruit throughout this and many other countries, and certainly at one time there was a fair promise of these hopes being partly realised, but the unpropitious weather which has prevailed a great part of this month here has already done considerable damage in the agricultural districts, and such bad harvest weather we fear may exercise some depressing effect upon trade, but at the best there will be probably the appreciable amount, and a little or an advanced state of the gathering of the harvest; nevertheless, as long as the autumn turns to a fair average it will be an exceedingly great blessing. Now, supposing that sufficient of the crops is saved in good condition to yield a full average harvest, and allowing that there is a vast deal of back work to pull up, and that hostilities have ceased between Russia and Turkey, that would be about as favourable a budget as anyone can well bring forward in support of an immediate general revival. Let us, however, now take a look at the opposite side. In place of Russia there is Austria at war, and Greece in insurrection. An uneasy money market and many foreign Governments in financial straits. Take Russia, Turkey, Egypt, the Danubian Principalities, and even Austria. The people of these countries are taxed up to the hilt, to defray military and other expenses. The Governments of these nations have no funds, and are not likely to have any, to spare for a long time to come, for their credit is well nigh gone, and they can only borrow on ruinous terms for such undertakings as railways, bridges, and other similar works of progress and civilisation.

grew and still grows. The American Republics continue in a very bad state, and Chili, the only respectable one left amongst them, appears to be financially crippled. There are at least a dozen small and great nations in Europe and America which at the present time are precluded for want of means from putting in hand any fresh or large contracts; therefore a large deputation has to be made from former years, as our markets were formerly largely supplied by the public works of foreign Governments; besides, the great accumulation of metals, and the consequent depreciation of value, and the important item in the calculation whenever any of the railways of the Government require new metals, it is often a condition that the old metals are to be taken back at an exchange price, and these accumulations tend largely to increase the supply, and consequently to have the tendency of lowering the value. Then, again, many countries that were formerly customers are now competitors, and the continued absence of demand all tend to depress the market.

We heartily wish it were otherwise, but would it be honest to say so because we wish it so? No, we would rather abide the consequences than to put forth a statement for the purpose of deception, and which might bring great misfortune upon the trade hereafter. Honesty is the best policy; and it is better that the naked truth be known than that things should be falsified. It will be fortunate indeed if the ensuing autumn be equal to an average season—more than this we certainly do not anticipate, and, considering the unsatisfactory state of human affairs, it will be a matter of congratulation if we escape a commercial crisis. The consignment of goods with the prospective view of a profit is as old as time; this is the case we know of no other remedy than that of cheapness. There is no objection to increased supplies provided they can be brought forward at such prices as will be worth the while of consumers to use them in more extensive manner. The further uses to which metals might be applied are considerable if they could be bought cheaper, and it behoves manufacturers to turn their particular attention to the matter of price—that is to say, their greatest object should be to supply the market with goods at the lowest possible price, and thus public the advantages in the price of metals over those of other articles. It should buy and sell as cheaply as possible, in order to extend the demand, and to enable consumers to appreciate the favourable comparison in which metals stand to other commodities. New outlets are required, and one of the finest fields of enterprise is, no doubt, open to us if we choose to set about in good earnest, and establish commercial relations with the natives of the interior of Africa; but this is a subject which we cannot touch upon here.

**COPPER.**—There is nothing much to say either for or against this metal. The demand has been very limited, but prices have been steadily maintained. The deliveries for the month are supposed to about balance the arrivals, and, therefore, the statistical position has probably undergone but slight change; the exact figures, however, will appear in course of a day or two, and the trade will then have the opportunity of seeing which way the market is turning. We need scarcely remark that the stock on hand is just what it ought to be for the present position, and if it were somewhat less, no inconvenience would be experienced by consumers in obtaining ample supplies, whereas a reduction might impart some degree of confidence, and induce buyers to give out orders, which they may be withholding until they are thoroughly satisfied that the market has reached a safe level. Possibly the statistics on Sept. 1 may slightly exceed those of Aug. 1, but the comparison of Aug. 31, with that of Aug. 15 will probably show a decrease. The present stock is already very large, and any addition to it will not be viewed favourably, as it will clearly prove a continued over production, and the trade will become almost less ready to trade in a steadily proportionately smaller quantity of metal, and any difficulty arises in financial matters. The demand for manufactured is limited, and but few orders placed for India; buyers of yellow metal in one or two instances have advanced to 5½ per lb., but in 4 by 4 copper the limits show too great a difference to lead to business; a rise in the exchange, however, might soon make a material change, for the price being comparatively low, and the shipments lately being only moderate, there would be plenty of shippers ready to venture upon making purchases, either in anticipation of receiving orders or for the purposes of consignment. The quotations for Australia have been variable during the month, but are generally steady, as for the remainder, with Chile, Germany, and Wales, but no freight, and for the U.S.

122. per ton higher than Chili bars, but there is now only about 91. margin, notwithstanding the public announcement that the Moonta Mines might shortly be closed. By the mail leaving New York on Aug. 17 the market there was stated to be quiet for antimony, the demand being only moderate, and the combination of the two factors has resulted in a decline in the price of English yellow metal sheathing, and the value nominally quoted 13c. currency in bond. American was irregular in price, and sales reported at 13½c. to 14c. New sheathing copper, 25c. braziers and bolts, 28c. There was no improvement to note in the market for ingot, and values were, if anything, a shade lower. Small transactions in Lake had taken place at 18c., and a sale of 59,000 lbs. Baltimore at 15½c.

IRON.—The number of orders in our markets has lately been more limited than formerly, and this is in a great measure accounted for by the loss of the Indian business. The orders that used to be executed in common English are now sent over to Belgium, and not only does this apply to such descriptions as Welsh and Middlesborough makes, but also to Staffordshire. There is a certain character of iron, such as Dew's Bronford, known in Calcutta as Rupee iron, and this is not sent to Belgium, and the common iron as well as the better class is made cheaper there for the many of the orders now come expressly worded for Belgium Rupee. Here, then, is another check to the English iron, and the districts we have referred to must most bitterly feel the keen competition of Belgium. The Staffordshire nail-rod trade with China has also suffered to an alarming extent, for the Belgians turn out cheaper rods, and very fine sizes at considerably reduced extras. The new thoroughfares that have been recently formed in London, such as the Clerkenwell-road, Theobald's road, Thames Embankment, and those of many other parts where new buildings now are, or will shortly be, in course of erection, are additional outlets for Belgian iron instead of English, for they supply girders, columns, angles, and Tees, and other iron that is used for building purposes below those of this country. A large building like the Grand Hotel, at the Newmarket-road, Tottenham-avenue will take several hundred tons of manufactured iron, and we hear that the same is being imported from Belgium. The improvements, therefore, that are being made in Belgium are no advantage to the English manufacturers of iron, but Belgium derives the benefit. Of course this refers only to one branch of the trade, but even in this respect it is a serious loss to the country, and it is a blot upon our commercial character that we are unable to compete with Belgium.

The English nation must be wanting in energy and enterprise when the material employed in the building of our houses is imported from abroad and delivered to us cheaper and better than can be produced by our own manufacturers. Iron, which abounds so much in the country and may be said to lie at our very doors, and in previous years formed one of the leading trades, cannot now be made so cheaply as Belgium can deliver it. The metal exists on the spot, the coal nees and fuel for working it is alongside of it, the workings are thoroughly developed and understood, the machinery is of the best, the iron masters have no want of capital, the character of the iron and the ironmasters has not declined, and it is disposed to wish exists to give the English masters the preference, but there is an obstacle in the way which requires removal, and it seems a most extraordinary circumstance that possessing all the requisite means and facilities we quietly sit still while others are carrying off our trade before our eyes. Are the jealousies so great in the iron trade, or the interests so conflicting, that men cannot move in harmony together, and consolidate their strength, and improve their position, so as to command the market for the opposite side of the globe? If a little place comparatively small as Belgium can cut us out as we may expect in the time from our rich countries of larger resources? American tools are already imported and exported largely, and are pronounced to be better and cheaper than ours. Will America not be importing iron soon into England unless we immediately set about putting our house in order, and making the necessary changes for the future success of the trade? It is grievous to see the present state and condition into which the trade has fallen, and no effort made to revivite. There is work to be done, and yet the mills are not half employed, and the men complain, being ill fed and ill clothed, and the great quantity of iron which the numerous little Belgium is busily occupied supplying iron in our place. The men and the masters quarrel with their bread and butter, and so Belgium steps in and eats it for them.

with their bread and butter, and so begin steps in advance that it is for them.

It is vexatious and painful to see the work requiring to be done left to others to do on account of the differences the Government has with those whose interests and welfare are identical in the trade, and all for want of proper understanding.

Whatever may be accomplished hereafter: one thing is certain, that the present generation of Englishmen is not equal in ironmaking to the Belgians in point of cheapness, and although the fact of our being undersold is so generally known, yet we hear of the preposterous cry set up for higher prices. Could anything be more absurd? We do not believe it emanates from the ironmasters, for they must be too sensible of existing difficulties ever to dream of such folly and madness, but it is amongst a speculative class, who have nothing at stake beyond the result of a few running contracts in Scotch or North of England pig-iron, but their chances of success are trifling. The price of g.m.b.'s in comparison with Middlesbrough pigs is much too high, and 45s. is considered by many to be their relative value. Of course the named brands occupy a much higher position, but makers in some instances have been more in favour of reducing prices than advancing them. As speculation is the cause of much of this, and as the Government has not yet advanced, but speculation is always uncertain, and may cease at any moment, I can only rightly enough wish to see the legitimate demand improved, and it will be quite time to talk of higher rates when that improvement is secured or, at any rate, visible, but neither pig-iron or manufactured iron can command higher rates. The trade is too dull, the markets too weak, and the prospects too bad to attempt to advance prices, and before quotations can rise the favourable for the unfavourable must be substituted, the active for the inactive, and the good signs for the bad ones. There must be a complete metamorphosis of the whole, and the purgation must not only extend to things commercially as well as politically, but financially and socially. The trade requires to be thoroughly re-organised and re-established upon improved principles, and until some great reformation takes place there will

The trade has been pretty well at a standstill during the whole of the past week. Nothing has occurred to encourage anyone to take more interest in the welfare of this metal than has been shown during the past few months by either buyer or seller. Although from some few districts the trade is thought to have slightly improved, and hopes are entertained of a speedy return to activity, we cannot but think that they are based upon a very feeble foundation, and there is nothing apparently upon which they can be established. It is most painfully true that the iron trade is in a very languid condition in every country, but are all other countries as badly off for orders as England? This, according to the various reports, cannot be, the trade in Belgium, America, and other places being reported much busier than it is here. The statement at foot shows that the shipments in Scotch pig-iron compare very unfavourably last week with the corresponding weeks of last year, but more than they have been doing lately. The increase, however, is but very small, being only 220 tons, and will, probably, be reversed again next week, but for the moment it shows a turn in the right direction, and many, no doubt, hope that it may continue, for the total decrease of this year is very great, and business will have to improve considerably during the remaining four months for them even to reach the moderate figures of last year.

for the month to reach the moderate figures of last year.

At South Durham, the real market keeping very firm in their prices, but the market for everything is rather quiet, and is to be caused by so many of the makers taking holidays for the Stockton races. Pig-Iron No. 1 is quoted at 43s.; No. 2, 39s. 6d.; and No. 4 forge, 38s. 6d. These are the ruling prices with most makers, but there are few merchants who care to place their orders at these rates. The manufactured trade is almost lifeless, and ship-plates are quoted at 6s. 5s. per ton, but a fair order would not be declined at 2s. 6d. per ton less. The same with the other kinds of iron, and the price of pig-Iron No. 1, an approved specification might easily be placed at a somewhat lower figure. For the kind of iron there is no alteration, prices keeping as last represented, and the demand remaining in a very dull state. There is little or nothing to be reported from Leeds, the markets keeping very dull for all descriptions of iron, with the exception, perhaps, of best Yorkshire, for which kind the demand is said to be very fair, though in many cases a very close price has to be accepted to obtain orders. The market for cast-iron is said to be better, and the demand for some of the rates, a little extra demand for some few kinds being observable, especially for manufactured iron. There is rather a better feeling noticed at Newport, and the slight improvement which is said took place about a fortnight or three weeks ago continues, and some dealers talk of advancing their rates slightly ere long. The demand for merchant iron is reported as being slightly better, but that for rails is small, and the market is rather slight. The shipments for bars was pretty good, and the returns showing that the clearances were larger than they have been during the past weeks.

Business is represented by being steady at Barrow-in-Furness, Bessemer quality of hematite being most especially in request, and the deliveries are said to be lightly on the increase. There are many buyers, however, who are said to be holding orders back, and will not give them out at the present rates, they are offering them at some further reduction, trying to tempt sellers to make the occasions, but they cannot at present get them placed, as makers keep firm in their quotations, they declare that they prefer to hold their stocks rather than to sell at anything under the present value. No. 1 Bessemer is quoted at 59s. per ton, delivered free at sellers' works; No. 2, 57s. 6d.; No. 3, 56s. 6d.; and No. 3 forge at 55s.; No. 4 and 5 forge, at 54s. 6d.; and white and mottled samples, 53s. Iron ore keeps steady, but finished iron still remains in a depressed condition. The mail from New York of Aug. 17 shows that the demand for Scotch pig-iron in that country keeps light, sales being only made in small parcels. Scrap keeps dull; No. 1 wrought is quoted at \$20 to \$21 from yard, and cast \$12 to \$15. A fair demand exists for rails at \$32 to \$35, and for old at \$17 to \$19. The warrant market at Glasgow remained dull all last week, the lowest figure touched on Friday being 45s. 4½d. This week the market opened at 45s. 6½d., but gradually declined to 45s. 3d., but for the influence it rose again to 45s. 6d., and with it now closing at 45s. 4½d.

48s. cash (say) 48s. 2d.	SHIPMENTS.	
For the week ending Aug. 24, 1878 .....	Tons	8,700
For the week ending Aug. 25, 1877 .....		8,480
Increase .....		220
Total decrease for 1878 .....		62,168
Imports of Middleborough pig-iron into Grangemouth:—		
For the week ending Aug. 25, 1877 .....	Tons	5,340
For the week ending Aug. 24, 1878 .....		5,170
Decrease .....		170
Total increase for 1878 .....		7,428
	FURNACES.	
In blast Aug. 25, 1877 .....		87

**TIN.**—The tendency of the market has been towards lower prices and as long as supplies keep ahead of the demand this must necessarily continue to be the case; at present, therefore, very little prospect exists of improved value, as stocks to-morrow are not unlikely to show a further increase. The latest accounts by mail from Tasmania state that the discoveries of tin on the West Coast have been checked by the approach of winter. The Mount Bischoff Mines were retarded some time by a strike among the miners for an increase of wages from 7s. 6d. to 9s. 2d. per day of eight hours, but the company sent over to Victoria and procured the men required without difficulty. Under these circumstances the supply of tin from Tasmania will probably show no falling off, nor is it likely there will be much falling off elsewhere. There is always a great deal of talk about shutting up mines when prices are reduced, but what is said is seldom done. It is hardly necessary to say that the English buyers have no intention of yielding, yet while, at least, it would appear as if

the sale of ore being kept up so well. The consumers are deriving the benefit from the open competition, but the increased facilities and cheaper mode of working the mines enable miners to accept reduced prices, for they can now raise more ore, and consequently bring up their returns in that way, and where plenty of ore about it is no great matter if a few hundred tons more are thrown in to realise an equivalent return. The English miners evidently do not intend to be beaten, and we are very glad to see it. They may have to endure hard times, but there is no reason to doubt the power of endurance they possess as being quite equal to that of any other miners. They begin to see the folly of talking about abandoning their source of livelihood on account of the keenness of competition, and are at last meeting the competition in the most sensible manner, and are working harder and selling at a lower price than ever before. They may try hard to cut us out it only shows the necessity of our trying equally hard to keep them out, but those who work the hardest and the largest and the cheapest will prevail in the end. With all the appliances and advantages which this country possesses it would be strange indeed if it raised thousands of miles away from our shores could be imported here and sold below the price of that raised on the spot. The mining property ought to make a fair return to the owners in their return to their tenants, and the whole of the working expenses ought to be paid down in every possible way, and wherever retrenchment can be effected it ought to be immediately carried out with a full determination to hold our own against all comers. Foreign tin has been sold to-day as low as 58*l*. 10*s*.

**QUICKSILVER.**—There is no change at all.

**THE IRON TRADE.**—(Griffiths's Weekly Report).—Friday evening. —The Glasgow market gives no indications of improvement; prices remain about the same as last week. A limited business has been done to-day in g.b.m.s. at 48s. and 48s. 4½d., closing this afternoon. The best sellers at 48s. 2½d. in g.b.m.s. We quote makers' No. 1 iron:—Staffordshire, 55s. 6d. Coltness, 59s., Calder, 56s., &c.; Lurgan, 56s. 6d.; Summerlee, 54s. Monkland, 49s. 6d., f.o.b. Glasgow; Gleggarnock, 54s.; Eglinton, 48s., f.o.b. Ardrossan; Shotts, 57s. 6d., f.o.b. Leith. The general improvement in the iron trade does not progress so rapidly as was anticipated three weeks since. Some departments are certainly more active. This remark applies more to the steel rail trade than any other. For this class of rails enquiries continue numerous, and a good business has been done over the last three weeks by some of the Sheffield and Welsh houses. Prices are stiff. With the exception of some of the leading houses, the trade is quieter in Staffordshire, the Earl of Dudley, W. Barrows and Sons, and Robert Heath and Son being the exceptions. All these have had good accessions of orders for best iron during the last nine days.

The demand for nail-rod iron is less brisk than it was. There is a large business doing in Staffordshire sheet-iron, but the prices are unremunerative. We have no orders on this market for iron rails. The demand for boiler-plates of the best quality continues inactive. The trade in wire rods has fallen off very much, we believe owing to the great competition which the German makers interpose to the market for this article. Our merchants are now sending not only these but the coarsest wire to Germany. The trade all round is less brisk in finished iron than it was 14 days since, and the general market is certainly quieter with a diminished volume of business doing. We do not observe any giving way in price in the best brands of iron, and common Welsh bars are held firmly by the makers. Tin plates have gone back a little, the demand even for charcoal is less active, and we are still unable to report any improvement in cookes. The market for tin is still drooping. Australian and Straits have been done to-day at 59s. Copper market looks better, prices firmer.

MESSRS. BROOKER, DORE, and CO.—TIN-PLATES: In fairly good demand, but to the present time there is no advance upon the low prices that have been current for some time. MESSRS. E. P. and W. Baldwin have again started their tin-plate works at Horsleyfields, Wolverhampton; these works have been closed for over twelve months, and have in the interim undergone considerable repairs and improvements. They will continue to manufacture at these works as heretofore their well-known brand, "E. P. and W. B.," is still in great demand. Some of the customer's orders are still rather badly off for orders, and are consequently becoming very keenly for business. We are glad to say that the Blackwall Galvanised Iron Company are fully employed, and there seems no fear of their having to stand for want of business.—ZINC: The "V. M." Company have made a slight reduction, and we now quote their brand 12 lbs. for 5-ton lots and above.

Messrs. FAY, JAMES, and Co.—COPPER: The auction sales of Australian on the 20th inst. realised at prices more than ever before attained for the description of copper ore, but the market is depressed in proportion. Australian supplies, although greatly reduced this year, are likely to be further diminished, but from other quarters there is at present no appearance of change. —LEAD is, generally speaking, without change. —TIN is again lower, the demand having been slack without interruption. —SPELTEN is unchanged. —LEAD slightly lower. —TIN PLATES still dull, but not quite notably changed.

The settlement of the fortnightly account has occupied the chief attention of dealers in the MINING SHARE MARKET this week, though comparatively it was a small affair, and general business either for investment or for the next account continues very restricted, and our quotations remain for the most part merely nominal.

TIN MINES are almost entirely neglected, and no further change has taken place in the standards for ore. Dolcoath, 23 to 25; at the meeting a dividend of 5s. per share was declared. The accounts as presented showed a profit of 1101*l.* on the quarter. The tin and copper sales had realised 13,429*l.*, less dues, 671*l.* The costs for three months amounted to 11,668*l.* The engine-shaft is now down 14 fathoms below the 338 fathom level. The lode for the length of shaft 13 f., worth 100*l.* per fathom. The winze below the 335 is worth 70*l.*, and the new east shaft below the 326 is worth 60*l.* per fathom. The manager stated that at no former period had the mine looked so well. The western part was opening out well; the 314 was being driven rapidly west, and in five months will reach Harriett's shaft, about 20 fms. below the present bottom, and in this part of the mine he hopes to lay out a large piece of tin ground, worth probably from 150,000*l.* to 200,000*l.* He hoped they would be able to increase the returns from 372 to 450 tons per quarter. Wheal Pevor, 6 to 6½; the lode in the bottom level here is said to be worth 1 ton of black tin per fathom. Carn Brea, 30 to 32; at the meeting, to be held in Cornwall to-day, it is said that a call is expected. Tincrofts have declined to 6, 6½. At the meeting of this mine, to be held in Cornwall to-day it is said that a call will have to be made. For years past we have called attention to the heavy debt on this mine, though dividends were persisted in. South Frances, 3½ to 4; we hear that the account of sales at the meeting will show a profit of about 1000*l.*, but it is a question whether a dividend will be declared until there is a good cash balance in hand. Penstruthal, 3s. to 5s.; South Condurrow, 10½ to 11s. Wheal Arar, 3½ to 4; Wheal Granville, 2 to 2½.

COPPER MINES are without change, and there is no business doing in them. Devon Great Consols, 2 to 2½; in the 190 west the lode carried for 6 ft. wide is worth 7 tons of ore, or 20½ per fathom, besides 7 tons of mundic. West Tolgus, 50 to 52; at the meeting a dividend of 25s. per share was declared. The accounts showed a profit of 578s. on two months' working. The copper ore sold realised 3520½. After payment of dividend a balance of 1299½ was carried forward. The sales already realised for next account amount to 3327½. The various points in the mine are progressing favourably. Mellanear, 3½ to 4; this mine has sampled 560 tons of copper ore. Parys Mountain, 6s. to 8s.; the 90 shaft is looking a little better. Morfa Du, ¾ to 1; driving has commenced on the course of the lode, which is 6 ft. wide, yielding good solid bluestone, of which 25 tons have been broken.

LEAD MINES are quiet, though there is more business doing in lead shares than in any other mines. Roman Gravel,  $7\frac{1}{2}$  to  $7\frac{3}{4}$ ; the lode in the 110, south of new engine-shaft, is 3 ft. wide, worth  $1\frac{1}{2}$  ton per fathom. The lode in the 40 south is  $2\frac{1}{2}$  ft. wide, and just entering the run of ore ground seen in the 65 and lower levels. Van, 18 to 19. East Van,  $3\frac{1}{2}$  to  $3\frac{3}{4}$ ; the lode lately cut contains spots of lead, but not sufficient to value. Pateley Bridge, 4 to  $4\frac{1}{2}$ ; the 30 east is opening out well; lode 8 ft. wide, and worth 8 tons of lead per fathom. Other parts also looking well. On the 27th 20 tons of pig-lead were sold at 15s. 12s. 6d. per ton. Tankerville,  $3\frac{1}{2}$  to 4; the lode in the bottom level of the 206 east is worth 2 tons of lead ore per fathom; the same level west  $1\frac{1}{2}$  to 2 tons. The sampling on Thursday was 700 tons of lead ore. Glenroy,  $\frac{3}{4}$  to  $\frac{1}{2}$ ; the mine is now in fork again after the accident to the wheel, and the lode is 4 to 5 ft. wide, with occasionally blende and lead in the quartz, which is a favourable change. Grogwinon, 2 to 3; Great Laxey,  $18\frac{1}{2}$  to 19s.; Ladywell,  $\frac{3}{4}$  to 1; Leadhills,  $2\frac{1}{2}$  to 3; Rookhope Lead, 15s. to 17s. 6d.; West Chiverton,  $5\frac{1}{2}$  to 6s.; Wye Valley,  $1\frac{1}{2}$  to 2; West Wye Valley, 2 to  $2\frac{1}{2}$ . South Darren,  $1\frac{1}{2}$  to  $2\frac{1}{2}$ ; the whole of the lode in the 90 has not yet been cut through, but it is rich so far as seen. D'Eresby Mountain, 80 to 85; D'Eresby Consols, 10 to 11; Aberllyn, 10 to 11; Caron, 2 to  $2\frac{1}{2}$ ; Hartington,  $1\frac{1}{2}$  to 2; Marston, 65 to 60. Red Rock, 2 to  $2\frac{1}{2}$ ; this mine has sold 40 tons of lead ore at 8s. 16s. per ton. St. Harmon,  $2\frac{1}{2}$  to  $3\frac{1}{2}$ ; South Cwm-y-wat with 2 to 3.

FOREIGN MINES.—Blue Tent, 23 to 3; Cape Copper, 30 to 3; San Chontales, 12s. 6d. to 15s.; Eberhardt and Aurora, 33 to 4; New Zealand Kapanza, 13 to 13. Halfstaff, 34 to 44; the mine has sold 20 tons of lead, at 12½ 7s. 6d. per ton. St. John del Rey, 275 to 285; the advices show a profit of 5900*l.* for the month of July. Frontino and Bolivia shares have advanced to 24 3/4. The remittance in June 1717. Santa Barbara, 421*l.* and the profit for the month of June 1717. Santa Barbara, 25*l.* to 30*l.*; Pitaguir Gold, par to 4*l.* prem.; Flagstaff, 10*l.* to 12*l.* 6*d.*; New Quebrada, 14 to 24; Pastores, 4*l.* to 6*l.*; Part



Phillip, 10s. to 12s. 6d.; Richmond, 8½ to 9; Colorado United, 4 to 4½.

The Market for Mine Shares on the Stock Exchange has remained without any material change during the week, and the amount of bona fide business doing is extremely limited. The few transactions which have taken place have been almost entirely confined to about half-a-dozen foreign mines. Business has been done to-day in Colorado United at 4½, the closing price being 4 to 4½. Flagstaff at 9-16ths; New Zealand Kapanga at 1½; Richmond at 8½, 8½, and 8½, closing 8½ to 9. Rio Tinto bonds at 14½; and United Mexican at 3½. About midday 3½ to 4½ was quoted for Eberhardt and Aurora, but it does not seem to have led to business, as no transaction is officially recorded.

The statement made in last week's Journal as to the security of the English shareholders' tenure of their property in Nevada has been declared by several legal authorities to fairly represent the state of the case. The English shareholders are as secure as though the property were in England, and would have the same protection from and remedies in the American Courts against fraud or dishonesty on the part of any servant or representative employed at the mines as they would under corresponding circumstances have in the English Courts in dealing with servants in the London office. Letters from Mr. Bayliss and Mr. McEwen are published in other columns, and we have also received a brief communication from Mr. Anthony Pulbrook, to late for insertion with the others, but in which he says—"It was not my intention to address you respecting the affairs of this company, but it has been pointed out to me that as a member of the late committee my silence would lead to the inference that I adopted the views of Mr. John Bayliss, that we have not the slightest power or control over our property; that we have a mere shadow and not a substantial property. No one has stronger views than myself from what I saw when in Eureka of the absolute necessity of careful organisation of our management there to secure the successful working of the mine, but I cannot by any means go to the length that our legal position is so insecure as Mr. Bayliss states, and having over and over again advised foreign companies of the necessity of placing themselves in a position to invoke the protection of the laws of the country wherein they are working, it would ill become me to complain of the board of directors, having adopted such a step. Beyond taking care not to acknowledge such alarming news, and regretting that Mr. Brereton, connected as he was with the late committee, should have addressed you as he has done without the consent of the committee, I do not propose to discuss the matter."

The Pandora meeting was held on Monday, and is fully reported in other columns. It was the realisation to the letter of the oft-complained-of practice of ladies washing their soiled linen in public. The impunctuality of the concern, which necessitated the attempt directly or indirectly to seek external financial aid, is to be deplored, but the disreputable manner in which the matter was dealt with by certain officers of the company is far more deplorable. The ordinary etiquette of public meetings was entirely ignored, and probably few will regret many of the remarks made so deeply as those whose names have been indelibly connected with them by the publication of the report. When will chairmen of mine meetings learn to exercise their right (and support it by example) of preventing speakers from wandering from the point at issue to satisfy their personal animosities?

Scottish-Australian Mining, 1½ to 2: advice to July 6 state that during June the sales of coal were 20,057 tons, making for the half-year ending June 30 a total vend of 99,463 tons. Port Phillip and Colonial Gold, 3 to 4; the latest telegram received, dated Melbourne, Aug. 23, states that for the month ending Aug. 14 the gold obtained was from company's quartz 518 ozs., and from tributaries' quartz 1321 ozs., the total profit being 1572l.; the remittance was 1066l. New Zealand Kapanga, 1 to 1½; it appears that they have commenced stopping in the Albion shute, and also to stop the back-south of No. 6 level. The prospects are good.

St. John del Rey, 275 to 285; the latest telegram from Morro Velho, dated Rio de Janeiro, Aug. 23, states that the profit for July was 59000l. All is going on well. Advice, Aug. 29, state that the produce for the second division (11 days of August) was 12,750 oits., of the value of 49400l., the ley of the ore being 6.3 oits. per ton, equal to 7.8 per ton by old measurement. Don Pedro North del Rey, 3 to 4; the latest telegram from the mines, dated Rio de Janeiro, Aug. 22, states that the cross-cut has been driven 12 ft. The produce cleaned up for the first division of August was 500 oits. Frontino and Bolivia, 2½ to 3½; the advice to July 13, which are accompanied by a remittance of 4216l., show that the profit was 1717l. 7s. 8d., out of which 223l. was expended on capital account. During the month 92 tons from Silencio Mine yielded 9½ oits. of gold, or at the rate of 9 oits. 9 dwts. per ton. At Antioquia the loss was 25l. In all cases the London and Medellin, as well as the actual mine cost, are included, so that the profits stated are net. New Quebrada, 1½ to 2½; advice dated Aug. 2 show that 900 tons of ore, 14.23 per cent. produce wet way assay, were sent over the Bolivia Railway in June. The Selina has left Tucacas for Liverpool with a cargo of yellow pyrites. The Railway with ruby ore, and the Lady of the Lake with yellow ore, were both being loaded at Tucacas for Swansea. The Tolima Mining Company have received advices from their mines stating that the year's expenditure was nearly 111,000, and the returns nearly 113,000. The profit was about 352l. Richmond, 8½ to 9; the usual telegram from the mine at Eureka states that the week's run was 568,000, from 1070 tons of ore. During the week the refinery produced doré bars to the value of 418,000. The manager's report contains nothing particularly worthy of notice. The operations appear to be going on steadily as usual. The furnaces are still in good working order, and smelting the full average quantity of ore.

The market for Hydraulic or Gold Washing Company's shares shows no animation, though the prospects of many of the properties are reported to be good. Birdseye Creek, 3 to 4; the annual meeting of this company was held on Thursday, and full particulars will be found in another column. From the statements made it would appear as though the company had at last overcome the difficulties they had to surmount, and were on the high road to success. Blue Tent, 2½ to 3; operations here have been resumed with spirit, owing to the water from the Fall Creek Company's lakes becoming available. It is anticipated that steady working can be carried on now for a considerable time, and as the weather is favourable for this description of work some satisfactory results may be looked for. From Fall Creek intelligence has been received of the completion of the ditch connecting the company's lakes with the Blue Tent canal. The work of increasing the storage capacity of the lakes will now be pushed on with all possible speed, so that they may be ready before the winter rains set in.

Hultafall, 3½ to 4½; the test sample of 20 tons of lead has been sold to Sheldon, Bush, and Co., at 12l. 7s. 6d. per ton. The latest advices from the mines state that heavy rains had fallen, which enabled the agent to resume dressing. He reports that the mines continue to open up well. The west level in the 15 is turning out rich mineral for the width carried (4 feet 6 inches solid) in the forebrest. The west level in the 25 is yielding well, and the lode is more compact.

Lead Mines have remained practically without change. Van, 17 to 19; there is no particular alteration reported this week. The 105 west continues to improve, and is now worth 5 tons per fathom. Other parts unchanged. Surface operations going on well, as usual. Pateley Bridge, 3½ to 4½; the 30 east, on Rake vein, continues to open out satisfactorily, now worth 8 tons of lead ore per fathom. The 20 east is improving, and the indications for cutting the same run of ground are very cheering. Other parts of the mine are looking very well.

Subjoined are the closing quotations:—  
Ashton, ½ to 1; Devon Great Consols, 1 to 1½ prem.; East Canada, ½ to ¾; Glyn, ¾ to 1; Great Laxey, 18½ to 19½; Hingston Down, ¾ to 1; Leadhill, 2½ to 3; Marke Valley, ¾ to 1; Parys Mountain, ¾ to 1; Pateley Bridge, 3½ to 4½; Penrith, ¾ to 1; Roman Gravel, 7 to 8; Rookhope, ½ to ¾; Tankerville, 3½ to 4½; Thucifer, 4 to 5; Van, 17 to 19; West Ashton, 1½ to 2; West Bassett, ¾ to 1; West Chiverton, 5½ to 6½; West Pateley, 1½ to 2; Wheel Green, 1½ to 2½; Almaden and Tinto, ¾ to 1; Birdseye Creek, 3 to 4; Blue Tent, 2½ to 3; Cape Copper, 30 to 31; Cedar Creek, ¾ to 1; Chonlaten, ¾ to 1; Colorado United, 4 to 4½; Don Pedro, 3 to 4; Eberhardt and Aurora, 3½ to 4½; Exchequer, 1-16th to 3-16th; Flagstaff, 9-16th to 1; Frontino and Bolivia, 2½ to 3½; Hultafall, 3½ to 4½; I.X.L., 1-16th to 3-16th; Javal, ¾ to 1; New Zealand Kapanga, 1½ to 1¾; Last Chance, ¾ to 1; New Quebrada, 1½ to 1¾; Oregon Pref., 4 to 4½; Placerilla, 2½ to 3; Pumas Bureks, 2½ to 3; Port Phillip, ½ to ¾; Richmond Consolidated, 8½ to 9; St. John del Rey, 275 to 285; Sierra Buttes, 1½ to 1¾; South Aurora, 3 to 4; Teoma, ¾ to 1; United Mexican, 3½ to 4½.

COLLIERIES.—No change of importance is noticeable in the colliery share market, and few transactions have been reported. There is, however, amongst the holders of these shares a more hopeful feeling, and an increasing inclination to hold their securities until improving trade produces a better demand for them. In almost all branches there are satisfactory signs of advancement, and in none more so than in the coal and iron trades. We have frequently laid stress upon the steady and remarkable growth of our exports of fuel, and though it is true that some manufacturers would be preferable, as an evidence of activity amongst purchasers are better, than none, and that they have been keeping our markets here pretty clear of stocks. Our exports of coal for last week were 388,444 tons, one-tenth of no less than 106,518 tons. Home enquiry is, however, becoming larger, the chief lines of railway having carried to London alone during July 408,455 tons of coal; while in June the traffic amounted to only 365,794 tons. South Wales still shows a larger increase in the foreign coal trade than our other ports, and there can be no doubt that, as we have previously stated, the great extensions of railway and dock accommodation, and the increasing shipping which goes by those most interested and most competent to form an opinion as to the state of the coal trade, all tend to show that the coal trade there is looked upon as being very much larger proportions than either in the past or present. A

very considerable proportion of this accession of trade will no doubt be due to the extended knowledge of the value of the anthracite coal, of which South Wales contains great deposits of high quality. For many purposes nothing can exceed the value of this class of fuel, and since the introduction of recently patented apparatus it has become apparent that it forms an invaluable steam producer. The Yaisedwyn Company, which was lately formed with a small capital (5000l.) to work a vast area of anthracite coal, as well as the well-known Yaisedwyn Iron and Steel Works, finds orders numerous, and we are assured that its agents in Swansea have more enquiries for this company's coal than they can possibly meet. The selling price leaves a profit even now of about 2s. per ton, and with improved trade the returns will, of course, be much larger. The company is, therefore, one deserving the careful attention of investors, more particularly as the property is a most valuable one, over the development of and plant of which more than a quarter of a million has been spent.

Some time ago we were able to inform our readers that negotiations were in progress for the compromise of the Bilson and Crump Company's suit against Mr. A. Gould's executor. We now learn that the compromise has been settled on the terms of a payment by the executor to the company of 10,000l. in cash, and a surrender of 10,000l. of debentures, and 2500l. of shares. This compromise is not to affect the company's claim against Mr. T. Gould, negotiations for the settlement of which are still pending. One of the promoters is also to be called upon to refund a large sum of his profits.

The Chapel House Company still manage to keep their pits in full work, though the average working time of the neighbourhood is only two or three days a fortnight. This company has, however, always had a good demand for its coal, and now that the newly opened Parkseam is being worked by means of the powerful engine recently erected, it is anticipated that the company's returns will soon be considerably greater than they have been for some time past. A valuable seam of coal is reported as having been found within a few feet of the surface at Llay Hall, the shares of which close the same as last week, 6 to 8. We have no change to report as regards Altamir, which shares are at 3½ to 3¾. Newport Abercrombie are 4 to 4½; Cardiff and Swansea, 1 to 1½; Thorp's Gawber, 2½ to 2¾; New Sharlston, 3 to 4.

At the Swansea Ticketing, on Tuesday, 1511 tons of copper ore were sold, realising 7974l. 19s. 6d. The particulars of the sale were—Average standard for 9 per cent. produce, 78l. 4s. 0d.; average produce, 9 13-16; average price per ton, 5l. 5s. 6d.; quantity of fine copper, 148 tons 16½ cwt. The following are the particulars of the two last sales:—

Date.	Tons.	Standard.	Produce.	Per ton.	Per unit.	Ore copper.
Aug. 6	248	74 14 6	8 5-16	£ 4 1 9	9s. 10d.	£ 49 2 2
27	1511	78 4 0	9 13-16	5 5 6	10 8½	53 11 9

Compared with the last sale, the advance has been in the standard 3l. 10s., and in the price per ton of ore about 6s. 9d. Messrs. Richardson report that the Union ore gave a produce of 10 per cent. and sold at 11s. 0½d. per unit; Spanish, produce 5g. per unit 8s. 5½d.; Aljustrol, produce 4½, per unit 8s. 8½d. There will be no sale on Sept. 10.

The Compressed Peat Charcoal Company's special resolution for the reduction of the capital to 10,000l., in 1l. shares, has been confirmed by the Court of Chancery.

CHEMICALS, MINERALS, AND METALS.—Messrs. J. Berger Spence and Co. (Aug. 24).—Alum: Loose lump, 6l. 7s. 6d. to 6l. 10s.; ground, 7l. 5s.; Arsenic: Best white powdered, 8l.; Borax: Refined, English, 36l.; Copperas: Green, 52s. 6d.; white, 8l. 7s. 6d.; Copper: Sulphate, 19l.; Nitrate of Lead, 31l. 15s.; Saltpetre: Refined English, 27l. 10s.; Sulphate of Zinc, 12l. 12s. 6d.; Sulphur: Roll, 8l. 10s.; flowers, 10l. 10s.; Tin crystals, 6½d. per lb.; White Lead, 28l. 15s.; Barytes: Carbonate, 109s.; Brimstone: Best thirds, 5l. 10s.; China Clay, 39s.; Oxide of Zinc, 22l. 10s.; Tale, 5l.; Umber, 70s.; Charcoal: Best stick, 4½d. per bushel; field burnt, 7d.; Globe Steam Boiler Powder, 20s. per cwt.; Naphtha, 60 per cent., 3s. 9d.

With this week's Journal a SUPPLEMENTAL SHEET is given, which contains: Original Correspondence: Prevention of Fire-damp Explosions (F. Wollesz); Rock-Boring Machinery (W. W. Dunn, F. J. King); Rock-Boring Machinery—Seymour's Drill (C. Sotham); Rock-Boring Machinery (L. Gros, Mayne, Leaver, and Co.); Rock Drill Machines (E. Edwards); Australian Tin and Emigration of Miners (W. Tregay); Port Phillip Gold Mining Company; Richmond Mining Company (R. M. Brereton); the Richmond Consolidated Mining Company (J. Bayliss); Richmond Mining Company (J. Elliott); Mining in North Wales, Salop, and Cardigan; Cornish Felspar; Botallack Mine; Old Treburgett Mine (W. Hancock); Pestana Gold Mining Company—Foreign Mining and Metallurgy—Royal Cornwall Polytechnic Society—the Miners' Association of Cornwall and Devon—Miners' Life Preserver (Illustrated)—Patent Matters—Meetings of Birdseye Creek, Yorke Peninsula, Dolcoath, and Botallack Companies, &c.

COLORADO UNITED.—The advices from these mines are of a most satisfactory nature, the lode in the 8th level having opened out to 3 ft. in width, and the ore being nearly 5 tons per fathom. The dressing works are now running satisfactorily. The agent states that these works will concentrate 50 tons per day, and that he will certainly clear net, after paying every expense from the stuff he is now running through the stulls, not less than \$16 per ton, or \$800 per day. Of the low-grade ores which are on hand ready for dressing there are 10,000 tons, and there is now great competition going on for the first and second class ores which are sold for cash at the mine. Of the Brown Mine the agent reports having driven on one of the old levels and taken out 2 tons of ore running from 700 ois. to 1000 ois. per ton. When this mine is cut by the tunnel in depth it is expected to disclose a fine body of ore, as the surface indications are so favourable; but as the lode dips into the mountain the tunnel may have to be driven some distance further before it cuts the lode, which is reported by competent men to be still ahead of them.

GREAT HOLWAY.—The directors have decided to erect over Roskell pit a powerful Cornish pumping-engine, and active preparations are being made for its reception. The valuable lodes will thus be permanently drained, and sinking operations be carried on with great vigour. The property has a splendid position, and there can be no doubt but that it will prove one of the best and most productive mines in North Wales.

PANDORA.—A report of the proceedings of the extraordinary general meeting, convened upon a requisition got up by Mr. James Crofts, and held on Monday, will be found in another column. The result was a large majority in favour of the directors and the present management, which from the first it was well known would be the case. Mr. Crofts had the advantage of his circular being in the hands of the shareholders for about three weeks before any reply from the directors appeared, but it scarcely required their full and convincing statements to decide the questions at issue. The directors received proxies for 4765 shares (exclusive of their own, about 900 more), while those sent to Mr. Crofts represented only 1992, and even these were sent in by him to the office 24 hours late. Not only could Mr. Crofts not substantiate any of his accusations, but it was shown by his own published statements that he had grossly misrepresented the facts. In alluding to the last annual meeting in December, 1877, he then spoke of the results as "satisfactory," and in March last he said that "With lead at its old prices profits could easily be made." Again, only in April last Mr. Crofts visited the mine, and said in his published articles, "The surface machinery is all that could be required, and far beyond what we saw at any other mine in the neighbourhood," and on another occasion he remarked that, "The prudent enlargement of the reservoirs has enabled full working to be continued in a very dry season." Yet a few weeks ago, in asking for the support of the shareholders to get the concern into the hands of a new company, named the Mineral Corporation, and himself, he accused the directors of lack of energy and of want of foresight in not providing a steam-engine to get the mine dry. In endeavouring to accomplish his object, Mr. Crofts has resorted to tactics which for his own sake we refrain from alluding to; while, on the other hand, the directors were fully entitled to the resolution passed—"That this meeting has every confidence in the present management," against which the only hands held up were those of Mr. Crofts and another shareholder.

The working of this valuable property was originated by Mr. Murchison, and it is well to remember that under the present management the mine has been opened from surface, and the whole of the machinery and plant erected and established; Mr. Crofts himself a few months ago describing them as all that could be required, and far beyond anything at any other mine in the neighbourhood. At the meeting the chairman stated that the ground sunk and driven was equal to nearly two miles, while the value of the ores sold, from down to the 23 ft. level, has amounted to 12,576l. Under these circumstances, and bearing in mind that a further sum of only 1400l. is considered enough to make the mine at least self-supporting, and to put it into an efficient state to be carried on without interruption from the weather, the results are very far from being "deplorable."

HAFNA MINE (Mineral Corporation).—A good discovery was made on Thursday at the mine. In forking the water in No. 1 adit

a fine lode has been met with, worth quite 2 tons of lead per fm.; the lode is 8 ft. wide.

PANT-Y-MWYN.—A meeting of shareholders was held at the Clarendon Rooms, Liverpool, on Thursday. Mr. James Laimbeer in the chair. The balance-sheet and report were submitted, and unanimously carried, the shareholders manifesting great satisfaction at the progress and success of their property. The dividend warrants are to be sent out immediately. Captain Hughes, the manager, in reply to the question of a shareholder as to whether the report that a course of ore had been intersected 6 ft. thick solid ore was correct, stated that such was perfectly true, and that anyone might satisfy himself on that point by a personal inspection. A vote of thanks to the directors and Captain Hughes concluded the proceedings.

## ZINC ORES.

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1.—CARBONATED AND OXYDED ZINC ORES (CALAMINE, &c.)  
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CHROME ORE, MAGNESITE, EMERY STONE, PUMICE STONP  
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the proper way, though offered an advance of wages; good  
places, cottages, wages guaranteed, and a bonus to all who stop  
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a bonus.

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WANTED, a SECONDHAND PORTABLE ENGINE, about  
15 to 20 horse power. Robey's preferred.  
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WANTED, TO PURCHASE, a SECOND-HAND TANK  
LOCOMOTIVE, 12 in. cylinders, in good order.  
Apply to Mr. JOHN DAGLISH, Whitburn Colliery Offices, Tynemouth.

## TO CONTRACTORS.

WANTED, a WATER-WHEEL, 40 ft. diameter, by 4 ft. breast,  
with pumping crank, having two holes, each 3¼ in. diameter, for a 6 ft.  
and a 4 ft. stroke respectively, and pin and braces for the same; two SWEEP  
RODS, each not less than 25 ft. long; one BALANCE BOB for tail balance; four  
travellers, or pendulums, to carry the rods; 100 yards of 1¼ in. diameter pump-  
ing rope, or the same length of 2 in. diameter iron rods, with plates, pins, &c.;  
and an angle bob, to break the angle of direction of main rods or pumping rope.  
Tenders for the above must also include its erection at New Appletree Wick Mine,  
near Skipton, Yorkshire, and must be sent to Mr. JAMES LEITH, Accountant,  
Secretary to the New Appletree Wick Mining Company (Limited), 85, Gracechurch-  
street, London, E.C.  
The Directors do not bind themselves to accept the lowest or any tender.

FOR SALE, a LARGE ASSORTMENT of 2, 3, 4, 5, 6, and  
7 inch CAST IRON SOCKET PIPES, tested up to 300 lbs. pressure.  
Cheap for cash.  
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## TO CAPITALISTS.

THE ADVERTISERS wishing to open out and develop what  
will in all probability prove a MAGNIFICENT LEAD MINE, in the  
county of DURHAM, are desirous of NEGOTIATING WITH GENTLEMEN  
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for being worked economically, and bids fair for becoming a valuable property.  
Communications to be addressed to "J. K.," MINING JOURNAL Office, 25,  
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## TO CAPITALISTS.

THE ADVERTISER has RECENTLY MADE a NEW  
DISCOVERY of LEAD five miles out of the town of RHAYADER. The  
discoverer, being a poor miner, wishes to DISPOSE of the PROPERTY at once.  
For further particulars, address to "M. C. D.," MINING JOURNAL Office, 25,  
Fleet-street, London, E.C.

DEVON AND CORNISH MINES.—It is worthy of notice that  
none of the mines recommended by R. J. R. have failed to yield satisfac-  
tory results; and if investors will do well to write to the undersigned before invest-  
ing, as he has a few shares in some very choice properties to dispose of.

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## Notices to Correspondents.

\* Much inconvenience having arisen in consequence of several of the Numbers during the past year being out of print, we recommend that the Journal should be filed on receipt; it then forms an accumulating useful work of reference.

**IMPORTANT NOTICE—REDUCTION OF POSTAGE ON THE "MINING JOURNAL."**—In consequence of the new POSTAL CONVENTION, which came into operation on July 1, the postage of the *Mining Journal* to many countries will be reduced to one-fourth. Henceforth the subscription will be 12s. 6d. per annum (39 frs.), postage included, for the following countries. The amount will, if desired, be collected at the subscriber's residence at the end of each year. The subscription continues until countermanded:—Austria, France, Belgium, Denmark (including Iceland and the Faroe Islands), Egypt, Germany, Gibraltar, Greece, Heligoland, Italy, Luxembourg, Netherlands, Norway, Portugal (including Madeira and the Azores), Roumania, Russia, Serbia, Sweden, Switzerland, United States, Malta, Turkey, Morocco, Tunis, and the Canary Islands. Spain 12s. 6d. (39 frs.).

**Received.**—"A Member" (Paris).—"Constant Reader" (Lanark).—"R. W. B."—"Shareholder" (Pondora) should have attended the meeting on Monday. Full particulars are given in another column.—"R. A."—"J. P." (Newcastle).—"Can any reader give 'One Interested' some particulars respecting the Great Elmy River Lead Mining Company?"—"G. C. L."—"J. S."—"A. W." (Carlisle).—"J. C." (St. Helier's).—"Constant Reader" (Carlisle). We think that you have been wrongly informed.—"N. E."—"U. S. E." (Hampton). Send all the details you have, and we will endeavour to arrange them for publication.

## THE MINING JOURNAL,

### Railway and Commercial Gazette.

LONDON, AUGUST 31, 1878.

## COAL GAS, AND THE ELECTRIC LIGHT.

On several occasions during the last two or three years, when discussing the question of the probable duration of our coal fields, and the period when a future generation would have to import from other countries a commodity which more than any other has contributed to the manufacturing and commercial greatness of England, we specially alluded to the important part that electricity was likely to play in supplying us with a light for all ordinary purposes in the place of gas. In the alarm raised a few years ago by Sir W. ARMSTRONG he gave us but a comparatively short time before our coal would be worked out—that is, at a depth where men could exist, while Mr. PRICE WILLIAMS, from a minute investigation, arrived at the conclusion that the total quantity at the present rate of consumption would not last much more than 360 years. Prof. JEVONS, too, in his able work, went elaborately into the question, and gave us even a less time than Mr. WILLIAMS. None of these gentlemen, however, in their estimates took into consideration the probability of gas being produced by other means than coal, nor, singular to say, was the point in any way brought under the consideration of the Select Committee on Coal of 1873, no more than was the probable saving that in time will be effected in the quantity of fuel required to produce a ton of pig-iron, or the progression of mechanical science in the economising of fuel in the raising of steam. The latter is an important consideration in connection with the coal question, seeing that at the present time our steam-engines of the best description do not utilise one-tenth of the power contained in the coal, the exhaustion of which has led to so many learned disquisitions and vaticinations. But why it should have been assumed that light obtained from coal was the only illuminating power we were likely to have until that mineral was worked out we are at a loss to understand, seeing that other and far more powerful and dazzling lights have so frequently been exhibited. We believe, however, that it may be now fairly assumed from the advancement made of late in electricity and its application as an illuminating agent of the greatest power, that those who will in the future take upon themselves the self-imposed task of calculating the length of time that will elapse before the last field of coal at a depth of 4000 ft.—the lowest at which it is considered possible men could live and work in—is likely to be worked out, will take into consideration the probability of coal gas being altogether dispensed with and replaced by a light of greater purity and power, and in every way far more economical. The lessening of the consumption of coal also in the making of pig and in the raising of steam we think should not be overlooked in the calculation with respect to the duration of our accessible stores of coal. In the production of gas, we may say, about one-sixth of the entire yield of coal in the kingdom is absorbed, whilst for steam power nearly 20 per cent. is consumed.

The lighting of our streets and houses has undergone but few changes, the oil in use for centuries having only been superseded by gas little more than 60 years ago, the oil lamps, of course, having been modified, and improved from time to time. But there is now every appearance that the period is not very far distant when the coal gas, so long a great monopoly, will be numbered with the inventions of the past that have had to succumb to others that were far superior to them, scientifically and economically. Some such feeling has evidently taken possession of not a few of the shareholders in some of the metropolitan gas companies on seeing during the last week or two the brilliant light in front of the Gaiety Theatre, in the Strand, and which has led to a rather sharp fall in the price of shares. The brilliant illuminator is now well known as the electric light, and has surprised and delighted the thousands who have seen it. The ordinary electric light is by no means a new invention, but it has undergone changes and modifications. Nearly 30 years ago it was tried by Prof. GLUKMAN, of Dublin, and several other scientific gentlemen, for the purpose of testing its power and capability for producing portraits by means of the Daguerrotype as a substitute for the solar rays. The illumination obtained was of the most sunlike brilliancy, remarkable for its steady and luminous bearing on every point towards which the focus of the reflector was directed. The experiment alluded to was in every way successful, as the adoption of the light for the same purpose for so many years amply testify. As a substitute for gas, however, there may be some little difficulties in the way at first, but these we believe will be easily overcome. As we pointed out in a previous article, Mr. JABLOCHOFF showed by his invention that the electric current could be divided, whilst with respect to his carbon points he was able to arrange them so as to keep them at a uniform distance. His invention when tried was to a great extent satisfactory, there not being that concentration which has been considered a defect in most of the artificial lights. But the light at the Gaiety Theatre, as invented by Mr. LONTIN, leaves very little to be desired, provided the machinery is not complex or easily disarranged. It is of a blueish cast, and does not affect the eyes the same as some other lights. Quite recently with its experiments were made at Metz by the German military authorities in two or three of the principal forts, for the purpose of ascertaining whether the operations of an enemy could be clearly shown and rendered futile. So far the experiments are said to be satisfactory, and are to be continued.

But most important of all appears in the first instance to be the lighting of our streets, and the LONTIN light certainly has several qualities that have been wanting in the others that have been brought under public notice with a view to adoption in public thoroughfares. One of the machines, we are told, will furnish electricity to a number of lamps, the brightness of each being brought down to about 100 gas lights when at full power. Then the price, a most important consideration, we are told, is much cheaper than gas, independent of the vast increase of light that is obtained, whilst there is the still further advantage claimed for it that it gives off no unpleasant odour, and cannot like gas explode. These desiderata are what is really required, and if they can be fully accomplished it is certain that there is likely to be a great revolution in street lighting in particular, for although it is probable that the electric light can be applied to large buildings, it is not likely that it can be made available for ordinary household purposes. As to the price, Mr. HOLLINGSHEAD, the lessee of the Gaiety Theatre, states that by reducing the number of lamps and making other alterations,

the illuminating power and the cost could be reduced at the same time, until the difference between the cost of gas and electricity would be equalised, still leaving immense advantages on the side of electricity. Gas we may say is now as low as it is likely to be, for coal is cheaper than it has been for several years past, so that if the electric light can now successfully compete with it there is very little doubt but what the gas would be ultimately snuffed out altogether. We are, therefore, not surprised to find the gas companies in the Metropolis taking the question up, whilst the Corporation of the City and the Metropolitan Board of Works also appear to be taking some interest in the matter, the latter having referred the question respecting lighting by electricity and gas to the scientific staff. To the gas companies the subject is of the gravest importance, but they are all likely to act in unison, for the number of them has decreased of late years owing to amalgamation, and the latter process is still going on. Ten years ago there were 13 companies, but six of them have amalgamated with the Chartered (which supplies two-thirds of the gas to the Metropolis), and the Surrey Consumers Company is now about to join it, whilst another company has amalgamated with the Commercial and the London. There is, therefore, every appearance that all the companies will form one body, as recommended by the Select Committee in 1867, so that any change would in consequence be more easily effected. As to the Chartered Company, it has the electric light at its offices, or at least near to them, and the directors are fully testing it as to the safety, cost, and manipulation. Thus we have the parties most interested in the lighting of the Metropolis showing themselves fully alive to its importance, and evidently determined not to be taken unawares. Should electricity prove the winner, and in our opinion this, to say the least, is as likely as otherwise, then there will be a serious falling off in the consumption of coal, and the probable destruction of a monopoly that has not always been wisely administered so far as the public is concerned. It will, however, give a large lease of life to the British coal fields which colliery owners and miners of the present day do not care about, seeing that the mining production, however advantageous it may be to posterity, is certainly a disadvantage to them. But the gas question is one that the coal interest can have but a very small voice in, as it will be dealt with for the benefit of the public generally.

## NOTES ON COAL MINING.

In the present state of our coal trade any attempt to improve its condition, either by the introduction of machinery to lessen the cost of production, or by the most approved methods of working, hauling, and screening coal so as to keep it as large as possible, and so advance its marketable value, present objects which should occupy the attention of all those interested in coal mining; experience and extended observation have already effected much in this direction, and will, we doubt not, still further aid us in the introduction of improvements. Great Britain possesses every quality of coal, from anthracite to the bituminous, coking, and household coals, in the highest degree of excellence, we should say in quality not possessed by any other country. Though our exports to some countries, notably Germany, having greatly decreased, by reason of the rapid development of the coal fields of that kingdom, yet it will be observed the output in Great Britain still increases, and it has been stated some coal owners are quietly opening new works and extending, in anticipation of better times, as to which there is at present no visible sign. However, if a revival of the iron and steel trades of this country occurs, arising from legitimate enterprise in new railways, merchant vessels, and the engines and machinery for these, there would naturally arise an increased demand for the produce of collieries.

In Great Britain the output of coal, ironstone, and fire-clay was—			
In year.	Output—tons.	Persons employed.	Tons per man per year.
1873.....	128,680,131	514,149	240
1874.....	140,718,382	538,829	260
1875.....	147,700,133	535,845	275

In Germany the output of the same minerals was—			
In year.	Output—tons.	Persons employed.	Tons per man per year.
1873.....	43,894,159	205,806	213
1874.....	42,591,471	203,915	208
1875.....	43,733,024	199,856	219

In Great Britain, in the year 1875, the number of deaths from accidents in coal mines was 1244, or 1 in every 430 employed, or 1 for 118,746 tons raised.

In Germany, in the same year, the deaths from accidents in coal mines were 587, or 1 in every 340 employed, or 1 for each 74,502 tons raised.

The increase in production of coal in Germany within a period of 21 years has been very great. In the year 1853 the production was about 8½ millions of tons, and in 1876 was nearly 43½ millions of tons, being about five times the quantity. Referring to the two tables above, it will be seen that the deaths from accidents in Germany are much greater than in Great Britain, in proportion to the coal raised; this may be accounted for by the working of seams of coal in a vertical or rearing position, as is the case in some parts of Germany, more especially with thick beds, the danger from falls of coal and roof is great. The great inclination and thinness of the seams of coal in the North of France and Belgium necessitate the driving of long stone drifts to cut the seams at various levels, in a similar way to cutting the veins in the mines of Cornwall. This has brought the use of drilling machines into prominence; the machine most used in Belgium is the Dubois and Francois drill, which has done work superior to other drills placed in competition with it.

The endless chain system of haulage was, it is believed, first used in the Staffordshire district, principally in above-ground haulage; it is now, however, much used underground, and has been introduced of late in some collieries in Northumberland, giving satisfactory results. In Belgium the same system has been adopted for above-ground and underground haulage in a very complete manner, almost all the work usually done by horses underground, and from the pits to screens, stone or shale heaps, workshops, &c., being effected by this means.

With regard to coal-cutting machines, there is much apathy shown in adopting these much needed helps for getting coal. They do not grow much in favour with those having charge of collieries; where they are adopted they seem to have been somewhat disappointing in the results obtained from their working. The greatest hindrance to their adoption probably is the expensive plant required in the commencement, before coal-cutters can be put into operation, especially in old-established mines with roads of great length between the pits and workings. Could this difficulty be overcome by creating power at the seat of mining operations there would be obtained the great advantage of a lesser production of small coal, and a more marketable article as large coal, and under the condition named above the coal should be obtained at less cost. As a rule, hitherto it has required a long face of coal, without much changing of the machine, to work economically. We noticed in the *Mining Journal* of Aug. 17 last a description and drawings of the LECHNER mining machine, an American invention, now exhibited at Paris. Its peculiarity seems to be that it is made to cut into the coal 2 in. high, 3 ft. wide, and 6 ft. forward, so that it seems well adapted for the bord and pillar system of working, the bords being driven, as a rule, 4 to 5 yards in width. The bord and pillar is still the leading system in the Northumberland and Durham mines, though the long-face system or modifications of it have made considerable advances of late years. It is stated the LECHNER machine, with some others, are to be tried shortly at South Hetton Colliery, in Durham, and we trust some practical good results may be obtained from the trial. The remarks as to expensive plant required for coal-cutters apply also to rock-drills. The latter have as yet been sparingly adopted in the Northern Counties, but screw-drills, worked by manual labour, such as McDERMOTT's, and others of similar construction, are largely used for boring in stone, for taking down stone canches in horse-roads, &c.—doing the work most economically.

Great progress has been made in the dispatch with which coal is drawn to the surface during the last 40 years. The cages at Wear-

mouth Colliery carry eight tubs each on four decks. There are two platforms or stages at the bottom and top of the pit, so that four tubs are put in and taken out simultaneously, and with another lift of the cage the remaining four are afterwards changed simultaneously, the one-half of the tubs are afterwards let down by counter-balance drops to the lower stages. This system saves time and also preserves the ropes. Cages holding four tubs in two decks are of frequent use now at large collieries. Flat hemp ropes are still used for raising coal at the Cramlington Collieries in Northumberland, their endurance is about three years, and from the greater thickness of the rope they form a better counter-balance than a flat wire-rope does. But at these pits there is an additional counter-balance at the back of the engine-house, consisting of a long wooden rod fixed at one end as a centre, to the other end a heavy weight is attached; this weight is also attached by a rope to a sheave on the drum shaft. When the cage is being lifted at the bottom of the pit this rod is in a horizontal position, and assists the engine in starting, at meetings the rod is in a vertical position, and the rope being then all unwound from the sheave begins to wind round it again in the contrary direction; it thus retards the engine more and more until the load arrives at the top of the pit, when the rod is again in a horizontal position ready for another lift.

Manufactured fuel has not been a success in the Northern Counties, perhaps it has not had a fair trial. Fuel of this kind is made to a great extent in France, used largely for the steam-ships of the navy, and to some extent on railways. It is usually made with a mixture of anthracite and semi-bituminous coal, washed if necessary, then ground to small, and after 8 or 10 per cent. of pitch is added, the mixture is heated and then compressed by hydraulic power into bricks as patent fuel. With the abundance and cheapness of small coal at the Northumberland steam collieries it is surprising that it should not yet have been utilised for this purpose, and by this means not only economising fuel, but helping to pay dividends to the mine proprietors.

The old method of coking in bee-hive ovens is still the rule in Durham county; it retains the advantage of making the purest and best quantity of coke, but 35 per cent. or more of volatile matter is in many cases wasted; the most that is done to utilise the gases is in some cases to use them in generating steam in the boilers for the supply of the colliery engines; in a few cases they are utilised, by means of flues, to assist in coking the coal. In the Coppée coking ovens, introduced in France and Belgium, the coal is burnt in closed ovens, excluded from the air; the coking is more quickly done, but the quality is said to be inferior. The volatile matters are nearly all utilised, part of the gas is returned in pipes to the ovens, and burnt in flues, thus assisting in coking the coal. The condensed gases are afterwards distilled, the oils and ammoniacal liquor separated, and the pitch remaining is used in manufacturing fuel.

The all-important question of accidents in coal mines has engaged the earnest thought of those in charge of or interested in mines. It is a surprise to many to know, notwithstanding the great loss of life from some recent explosions in coal mines, that this is only about one-fifth of the total loss of life from coal mining accidents. Falls of roof and coal are the principal destroyers of life. We trust that increased carefulness and greater skill will henceforward reduce these accidents to a minimum. The sad havoc that explosions still frequently make amongst the crew of a coal mine calls for our earnest attention and endeavours to find some means for their prevention. At least more carefulness and skill are evidently much required in those mines in which recently such a sad loss of lives occurred. We trust that every mine in this country may be put on a safe basis, so that from an inspection at any moment—whether by workmen or Inspectors of Mines—nothing contrary to law or to the generally understood principles of ventilation may be discovered. With workings properly laid out, so as to be well ventilated, abundance of air supply, the most approved self-extinguishing safety-lamps, careful workmen and officers in the mine, and the prohibition of shot firing in fiery mines, we think these would be a sufficient preventative to accidents from the ignition of gas, and hope in future such like safeguards and regulations will every where be put in force.

The remaining note we have to make refers to sinkings for coal, and in these water is the greatest difficulty to be encountered, though there are difficulties of other kinds also met with. The old-fashioned way of raising water in sinkings was by buckets or large tubs. These were insufficient for a large influx of water, and pumping had to be resorted to. The water pumped from a pair of pits by means of steam-engines and a multiplicity of pumps has been as much as 10,000 gallons per minute. But even this system has failed at the Whitburn sinking, near Sunderland, where an immense quantity was pumped up fruitlessly for some time. The Chaudron process of sinking is now in operation there with a prospect of the accomplishment of the task. As is well known no water is pumped by this system; everything is done by machinery in water. The system has been introduced from France and Belgium, where the coal measures are overlaid by water-holding strata, which have been sunk through by the Chaudron process after the failure of the ordinary methods.

## COAL IN FRANCE AND GERMANY.

The French Government has, as is well known, made considerable exertions to increase the production of coal in France. The Government of the Third Republic may not, perhaps, exhibit quite so much zeal in the matter as the Government of the Second Empire; but still, even now, every encouragement is given to coal mining among the French, and yet they do not take kindly to it, and it makes scarcely any progress. In 1876 17,047,761 tons of coal were raised from the soil of France, while two years previously—in 1874—the corresponding production was 17,059,547 tons. In Germany, on the contrary, coal mining appears to be growing apace, the coal production of Germany in 1876 having amounted to 49,588,050 tons, as compared with 46,658,000 tons in 1874. It is true that German coal mining is greatly stimulated and encouraged by the preference given to German coal by the German Government for Government purposes. But still we fancy that, after all, the success achieved by the Germans in connection with coal mining is largely attributable to the greater perseverance of the German character and to the greater aptitude of the Germans for mining pursuits. Anyhow, the facts of the case unmistakably point to the conclusion that France ranks almost nowhere as compared with Germany in regard to the production of coal. In fact, France is compelled to import coal rather largely from Germany, as well as from Great Britain and Belgium.

The Anglo-Saxon race appears to be emphatically the coal race. The Germans and the English come from the same stock, and both of them have helped very materially to people the United States. Taking the coal production of Great Britain at 110,000,000 tons per annum, while Germany and the United States raise about 90,000,000 tons of coal annually between them, we arrive at the remarkable fact that the three countries which may be said to have sprung from the Anglo-Saxon stock produce annually at least 200,000,000 tons of coal. In British dependencies, such as British India, Nova Scotia, and New South Wales, a small further contingent of coal is also made available for consumption. Belgium and France raise between them from 30,000,000 to 40,000,000 tons of coal annually. Austria, Russia, Spain, and a few other countries also produce small further quantities of coal; but while Great Britain, Germany, and the United States raise annually 200,000,000 tons between them, we should not imagine that the corresponding production effected by all other nations attains a collective aggregate of 100,000,000 tons annually. Are we not, then, fully justified in asserting that the Anglo-Saxon race is emphatically the coal race?

We will go a step further, and will venture to affirm that it is just because it is the coal race that the Anglo-Saxon race has achieved the greatest advance in material civilisation. We are not quite sure that this material civilisation is an unmixed boon; unless it is softened by such influences as religion, art, and education more; material civilisation degenerates into materialism, and nothing more; and materialism is the parent of selfishness, which brings enormous evils in its train. Again, it must in fairness be admitted that even material civilisation is many-sided, and does not present only one aspect to the impartial observer. Although France may not produce so much coal as Great Britain or Germany, she is none the



less a great, a powerful, and a rich nation. If she has less machinery and less steam-power she has a prosperous and varied agriculture; and the ease with which she has raised and paid a huge war indemnity in 1872 and 1873 proved that her people have contrived to amass a great amount of wealth.

### ON A NEW MINERAL WHITE.

BY DR. T. L. PHIPSON, F.C.S., ETC.

(Abstract of a paper read at the Academy of Sciences, Paris, July 29.)

The author, after referring at length to a number of experiments carried on for some years past in his laboratory with silicates of zinc, magnesia, lime, and other white compounds, with the view of giving to these substances the qualities of white lead by submitting them to a great variety of mechanical treatment calculated to induce molecular contraction, alludes to the ingenious researches of Mr. T. Griffiths, of Liverpool, with sulphide of zinc, which appears to be the only substance hitherto discovered that can possibly supersede carbonate of lead as a white pigment.

The preparation and properties of this new white pigment are described in detail, and its composition discussed. After some ten years of laborious and costly experiments Mr. Griffiths has succeeded in producing a new mineral white by the aid of sulphide of zinc, which entirely eclipses white lead and the old zinc white (oxide of zinc), by having much more "body" or covering power, and more permanent qualities than either of these, and, moreover, not being of a poisonous nature like white lead, does not affect the health of the workmen who manufacture it or of those who use it. The white sulphide of zinc is precipitated, washed, collected, calcined, levigated and dried, the product being, in the author's opinion, the most perfect white pigment hitherto obtained.

After speaking in complimentary terms of the success which has thus crowned the persevering efforts of Mr. Griffiths in carrying out these experiments, the result of which has been the possibility of manufacturing this remarkable substance upon a very extensive scale, the paper concludes by stating that the problem which the author had in view—that of producing a mineral white which should supersede white lead, by being non-poisonous, less costly, more durable, and of better colour—has been completely solved in these experiments, for nothing can possibly surpass in these respects the new white obtained by Mr. Griffiths, unless it be some one of the silicates or earths above referred to, which the author's lengthened experiments prove to be impossible.

**MINERS' LIFE PRESERVER.**—In connection with the working of collieries it is by no means an unfrequent occurrence to let down water by boring into old workings, and although recent legislation has done much to prevent casualties by directing that boreholes shall be kept in advance numerous cases have happened in which the water has gained so rapidly upon the men that lives have been sacrificed. In the Supplement to this day's Journal an illustrated description of an ingenious and useful invention is published, which it is proposed should be used in every colliery, and which would render the sudden outflow of water absolutely impossible. The inventor, Mr. A. UPWARD, of Queen Anne's Gate, Westminster, is a practical engineer of long experience, his introduction to the membership of the Institution of Civil Engineers having been upon the proposition of Mr. Brunel, seconded by Mr. Bryan Donkin, and it is a highly commendatory feature of the invention that it has long been in every day and successful use for another purpose. Mr. Upward's suggestions are quite worthy the attention of practical men, who will well know how to appreciate them.

STEEL AND IRON RAILS.—Exports of rails during the month of July—				
	1878.	1877.	1876.	
Iron .....	Tons 9,805	23,150	21,652	
Steel .....	21,293	20,431	16,101	

**THE COPPER TRADE.**—A correspondent writes—It is, I am informed, in contemplation by the directors to close the world-famed Wallaroo Copper Mines, and should such a decision be arrived at a direct and almost immediate effect would be produced on the copper trade and its thousand and one industries in Europe. The proprietors of the Wallaroo Mines assert that they have been producing copper at a loss for some time past for the benefit of manufacturers, and that unless prices are materially advanced some limit must be put to the mining. As this subject is of very great importance to a number of our manufacturing centres, it is of interest to note what was done during the past week. Messrs. James and Shakspeare, of London and Liverpool, offered 766 tons of Wallaroo copper, all in cakes, and previous to the auction the brokers gave some information which will be found of value to the copper industries. Last week the stock of Wallaroo in London was:—Old stock, 32 tons; metal, old, in previous sales, 722 tons; and the 766 tons offered by Messrs. James, as noted above. In addition there are in the hands of the importers 1335 tons of cakes and 5 tons of ingots, or 1390 tons. The total stock of copper of all brands in London is 6039 tons. In addition to Messrs. James and Shakspeare's sale 150 tons of Burra Barra cake and ingot copper have been sold by Messrs. Fry, James, and Co., but 57 tons of Australian ingot copper, brand G.W.C., were withdrawn by Messrs. Vivian, Younger, and Bond, who declined any bids under 66s. per ton. There will be no more public auctions until Nov. 12 of Wallaroo copper, as the prices of the auctions practically rule the copper industries until that date. We give the lowest and highest prices of Wallaroo. Messrs. Schwann, Jones (represented by Mr. Merton), Messrs. Pelly Boyle, Brandeis, Vivian, Younger, and Bond, Morrison, Von Delszen, and Powell were the buyers. The lowest price was 69s. 12s. 6d., and the highest price 70s. 6s. 6d. for cakes. Of the Burra Barra cakes the lots were taken by Messrs. Vivian, Wolff, Strauss, Brandeis, Lazarus, Jones, Von Delszen, and James and Shakspeare. The highest price was 68s. 17s. 6d., and the lowest 68s. 10s.

**MINING AND RAILWAYS IN NORTH DEVON.**—Surveys are being made for a railway from Barnstaple to Combarton and Lynton, and a public meeting has been held in the district, at which an active support was given to the proposed line. Such a line of railway as contemplated will be a great boon to the mining interests in North Devon, as it will pass through the silver-lead sets at Combarton and Parracombe, and iron lodes at Bratton Fleming. The railway will be made on the light system, with a 3-foot gauge, and is not to exceed 6000 ft. a mile. Mining speculators in North Devon are looking out for a rise in the price of lead and copper. Should this come about we are likely to hear of a little more vigour being thrown into the copper sets at the Bampfylde district, and at the old lead sets in Combarton.

**LEVANT.**—Mr. R. White writes—Peace being now established we are anxiously looking forward for a revival in trade to enhance the price of metals. This mine is opening very satisfactorily, and I hope we shall soon see a better state of things. Capt. H. Trezise and J. Thomas say—We are driving 17 ends by 53 men and 9 boys. We have 34 pitches working by 70 men and 15 boys, tributes varying from 5s. 6d. to 17s. in 17. Total men and boys on tutwork and tribute, 149 men and 24 boys.

**CORNISH CLAY WORKS.**—The extent to which the clay works around St. Austell have contributed to the wealth of the district has long been known, but owing to the long continued stagnation in business there has naturally been some difficulty in inducing capitalists to give renewed attention to properties suspended before wages had come down from the exorbitant figure ruling a few years since, even after the state of trade had rendered it almost impossible to effect sales. One clay set is now being offered for sale by Messrs. Philip and Co., the auctioneers of St. Austell, and it is stated with regard to it that from discoveries that have been made on clay of good quality, ample water power, and great facilities for working, and it appears that from the adjoining sett large quantities of clay have been sold at good prices during the recent depression. It is considered that the property now mentioned offers

a favourable opportunity for those desirous of entering on the clay business, and it is pointed out that in consequence of the recent depression in the market, contracts for all kinds of work can now be carried out in the most economical and advantageous manner. The property as to its facilities and capabilities has been reported on by Capt. James Knight, clay merchant, of Menadew, St. Austell, and other persons of long standing and experience, and all concur in expressing a favourable opinion with regard to it.

### REPORT FROM CORNWALL.

**Aug. 29.**—Under present circumstances that certainly must be considered a gratifying week in connection with the mining of Cornwall which opens with the declaration of a couple of dividends on the same day. Dolcoath, as we have before remarked, seems impregnable to the assaults of all adverse influences. Dividends may drop, but they show no sign of ceasing; and it is no more than the absolute fact to say that the deeper the mine has been sunk the richer it is found to be. In fact, during the whole of its centuries of operation (for, though history is silent, there is no doubt Dolcoath is one of the oldest mines in the county) it has never looked so well as it does at the present moment. West Tolgus, too, had its dividend to declare, and its tale of excellent prospects to report. Two facts are certainly not without their significance—the first that these two mines are mines in which all advantage is being taken of the latest mechanical improvements, and that side by side with this we find that in relation to them the Cornish miner is being defended against the somewhat rude assaults that have been made upon him of late. The Cornish miner has his faults, but he has many merits, and it is quite true, as Prof. Haughton said at the inaugural meeting of the Polytechnic Society this week, that "the whole world is filled with the labours of Cornishmen."

The proceedings of the meetings of the Polytechnic Society and of the Miners' Association (reports of which will be found elsewhere) fairly bristle with features of interest and value. Both societies are doing excellent work. The teaching power and results in connection with the Miners' Association were never greater, and if the mechanical department of the Polytechnic Exhibition is somewhat smaller than last year it is by no means wanting in points of special mining importance. In connection with both meetings special stress has been laid upon the progress of mechanical boring. This is to a large extent due to the fact that the presidential class of both associations is this year filled by one of our most able and respected mining authorities, Mr. Richard Taylor, whose firm has been for many years connected with mining enterprise in every part of the world, and who are now working five or six different boring machines, in addition to which Jordan's hand-borer has just been introduced by them at Mellanear. It seems almost incredible to hear of the progress that is being made by the Beaumont drill in the Great Halkyn tunnel—63 yards of adit 5 ft. square, driven in hard limestone, in a month. The famous Sastro Works could never show better results, and at this rate such as the county adit, the wonder of Cornwall in the past generation, will be regarded as a mere flea-bite. It is not at all unlikely that under the same auspices there will be some very novel improvements in mining machinery introduced into the county ere long.

### TRADE OF THE TYNE AND WEAR.

**Aug. 29.**—There is so little change in the position of the Coal and Coke Trades that it is difficult to discover any new feature; there is, however, much despondency generally in all trades, as the depression continues to be felt most severely. The coal trade varies in different localities, but only the best steam coal and gas coal works are nearly fully employed, most others are only partially so. Good medium sorts of gas coal are in increased demand, and ships' turns are in some instances eight working days; prices are firm for the best sorts, about 7s. per ton. The demand for best qualities of steam coal is hardly so good, but it is hoped that as the large grain ships come the demand for this coal will improve. Price 9s. 3d. to 9s. 6d. per ton, medium sorts 8s. per ton. The demand for house coal is very quiet, and there is no change in price. There is a better local enquiry for small coal. The shipments of coke have been pretty good. The iron shipbuilding trade is the only business at all brisk at present, and consequently the engineers building marine engines and boilers are tolerably busy. The ships already laid down will keep the yards going during the remainder of the present year. The demand for colliery engines and materials of all kinds is very poor, and most engineers and foundries are badly off for orders; many of the large general ironworks are only employed about half time. One of the pits in South Durham has been started again; we allude to one of the Brandon pits, which was laid off some time ago, as the masters wanted a reduction of 10 per cent., but the bulk of the men refused to agree to this. Some of the men have now agreed to the reduction, and the pit has been started, but only non-Union men are to be employed. A considerable number of miners in Durham have no connection at present with the Union, the depressed times have had the effect of causing them to dislike the payment of the necessary heavy subscriptions, and the ranks of the Union are consequently becoming gradually thinned.

**UNDERGROUND LOCOMOTIVES.**—The small locomotives introduced at the Lambton Collieries continue to be worked, and they certainly may be said to be to a considerable extent a success. They are on a small scale, as described in the Journal lately, and they are employed in hauling the coal tubs from the face of the dip workings in the place of ponies, and in this way they accomplish the work of four small horses. This is, of course, a most unfavourable application of locomotive power, as the gradient is severe—about 1 ft. in 9 ft.—and it is also unfavourable for the application of horse-power. The difference in the cost in this case between those small locomotives and horses is very trifling, and the problem of the successful and profitable working of locomotives underground remains to be solved. What is required is a locomotive (which can only be worked in such a position by means of compressed air) on a larger scale, capable of hauling (say) 50 or 60 coal tubs on a level. Those engines are required to haul the coals on the levels of the mines in the place of the cumbersome hauling engines with their expensive tail-ropes. The locomotive cannot be employed with any benefit in a gradient of such magnitude as that described; but on a level the case is different. There is, however, little doubt that further improvements will be made as the result of practice, and ultimately we may expect the introduction of larger engines with more beneficial results.

The working of the swing bridge at Newcastle is gradually causing a great change in the traffic on the Tyne; vessels are passing daily, many of them of large tonnage, up the river laden with corn, iron ore, &c., and some small vessels are now loading coals and fire-bricks, coke, &c., two miles west of Newcastle.

Ramsay's Blaydon Main coal and coke is now shipped at Derwent Haugh direct into sea-going vessels instead of being put into lighters or sent by rail. For shipment to Tyne docks there is sufficient water here for large vessels, and any great revival of trade will no doubt have the effect of reviving the scheme for the formation of a dock about the mouth of the Team river, and the diversion of the Mineral Railways communicating with North and West Durham to this point, thus cutting off about 12 miles of railway haulage from this point to Tyne Dock, some of it in heavy gradients; this will at the most moderate estimate effect a saving 1s. 6d. per ton, a very important consideration at this time.

The market at Middlesborough, on Tuesday, was scarcely as well attended as usual. Business was somewhat restricted; merchants are holding back from giving makers' prices, unless where they are compelled, and makers being fairly sold hold out for the extra 6d. per ton which they lately added to their quotations. The makers' rates remain very steady as a rule at—No. 1, 43s.; No. 3, 39s. 6d.; and No. 4, 38s. 6d., less 1 per cent. commission. Some of the merchants are doing business on somewhat more favourable terms. The general deliveries of pig-iron have been fairly maintained with the exception of last week, when the mills and forges in the locality were mostly closed. Less pig-iron was, therefore, consumed, and it is expected that the effect will be shown in the

lessening of the reduction which is expected in stocks this month. The shipments to Germany and continental ports have been above an average, but to Scotland, owing to some difficulty with lightermen at Grangemouth, the deliveries have been rather retarded. Some check has appeared in the demand for pig metal for Staffordshire, and also for Lancashire, as even 6d. per ton advance gives a better chance for other classes of iron which lately have been running a close race with Cleveland pig metal in the inland districts, though it originally started at a loss to the producers. In the manufactured iron trade there has as yet been nothing in this district to answer for the improved tone spoken of in other markets. Trade has kept quiet; there has been a little more enquiry reported, and as better reports are received from Staffordshire, and also from Belgium, it is hoped that no great time will elapse before some increased demand is experienced. There has been a little more enquiry for foundry work, but this has been almost entirely confined to pipes and chains, manufacturers of which are in most cases pretty fully employed. There is no change to notice in the prices of manufactured iron, which were nominally as for some time past.

### REPORT FROM NORTH AND SOUTH STAFFORDSHIRE.

**Aug. 29.**—The Coal Trade is beginning to put on somewhat of an improved appearance. At present, however, the demand on iron-making account is so limited that the improvement is not very distinct, and is seen mainly in those departments which always begin to revive with the approach of autumn. Very low prices are still quoted for inferior qualities; and, though this is also the fact in relation to some fuel of an excellent sort, yet the tendency of quotations generally is towards greater strength, and current prices will be accepted only for limited quantities. The prices of native pig-iron, with which the Cleveland and the West Yorkshire and Derbyshire iron competes, are slightly tightened by the better prices which are now being asked for the foreign product. For the moment the higher quotations check sales. All-mine pig-iron is not selling more freely than it was, and prices are not very strong—5s. for cold-blast and 4s. for hot-blast remain the nominal quotations of the Lillleshall Company, with room for negotiation by consumers. Best finished iron is a trifle firmer; 9s. 2s. 6d. is the price of the common bars of the Earl of Dudley, and 8s. 10s. is the minimum of such firms as Bradley, Barrows, and Hull. Good quality sheets (singles) are quoted 9s. per ton, but they are to be had at 8s. 10s. and 8s. Common sorts are as low as 7s. 10s. Heavy descriptions of finished iron are not in active demand, excepting in plates for gasometer, girder, bridge, and tank building. In these classes of plates the demand is good.

As I have previously intimated, the Birmingham Agreement, or sliding scale, which for some time past has regulated wages throughout a part of the South Staffordshire coal trade, will shortly expire—first in the Cannock Chase district, where the requisite six months' notice has been given by the miners and masters alike. This week official notifications of the change have been posted at the collieries affected. At present it is not known what course the employers will take at the expiration of the notices. As to the men, it is again stated that those in East Worcestershire and West Bromwich, Tipton, and Coseley will commence a definite movement for increased wages, and that they will be joined by the Cannock Chase men. Upon what grounds they can base any claim for higher remuneration it is difficult to see. As I have shown already, the employers are losing money rapidly.

Coal and iron properties on the local exchanges move very tardily. In most cases, indeed, prices show no strengthening. It is, however, gratifying to find that the shares of the great Sandwell Park Colliery keep steadily in favour. There are increasing evidences that the whole of the estate contains coal. Steps, too, I have reason to know are being taken by the chief engineer to prove all the property which the company may take.

Mr. Hutchinson Balmain, of Moseley-road, Birmingham, colliery manager, is under remand on bail at the Birmingham Police Court charged with defrauding the Cannock and Wimblebury Colliery Company of 1070l. Defendant was for two years and a half the manager of the company.

In the iron and coal trades of North Staffordshire there is this week no alteration to note.

The Sandwell Park Colliery Company's ninth general meeting was held on Tuesday at the Queen's Hotel, Birmingham, when for the first time a dividend of 5 per cent. was declared. The Chairman in his address expressed great satisfaction that Lord Dartmouth, the lessor, had allowed them to cancel the old lease, by which they would have shortly incurred the burden of paying a rent of about 7000l. per annum, and agreed to lease the company upwards of 1100 acres for 60 years at a minimum rent of 4000l. per annum, with the option of taking the remaining portion of the estate in four years. The retiring directors were reappointed.

The Midland Boiler Inspection and Assurance Company annual meeting was held at the company's offices on Wednesday afternoon, in Wolverhampton. The reports of the directors and of the chief engineer (Mr. E. B. Marten, C.E.) showed that 3415 boilers were in the care of the company in June. Of the total 1375 were colliery and 1228 ironworks boilers, the rest being at mills of different kinds. The total was 68 fewer than last year, caused mainly by the shutting off of iron mills in the North of England. There had been an explosion, which had cost the company 500l.; nevertheless, the profits were enough to enable the declaration of the same dividend this year as last. Respectful mention was made of the late Mr. Thomas Whitwell, who was a member of the committee of the Northern district.

At Longton, on Wednesday, Mr. J. G. Bakewell, manager of the Longton Hall Colliery, pleaded guilty to an infringement of the Mines Regulation Act by failing within 24 hours of the occurrence of an accident at his colliery to report the same to the Government Inspector of Mines. He was fined 40s.

### REPORT FROM NORTH WALES, SALOP, AND CARDIGAN.

**Aug. 29.**—Reading through the interesting *résumé* of Mr. T. Lanning Evans's paper on the Parys Mines, which appeared in the Journal last week, I could not but feel that Mr. Evans has fallen into two errors. The first relates to the age of the cupriferous strata of the Parys Mountain. However much the rocks of that part of Anglesey may resemble the strata of the Festiniog district, they are, and can be shown to be, greatly older. They belong to that portion of the Cambrian group that lies just below the Lingula Flags, and correspond, therefore, to the grits and metamorphic rocks that overlie the slate rocks of Carnarvonshire. The second error lies in the supposition that his view of the origin of these strata is opposed to that usually held by geologists. I am unable to discover this difference. The fact is that geologists who have studied these strata have long ago shown that they may owe their structure to a variety of causes. Theory apart, it would be pleasant to think that these cuprous deposits were continued in depth even in a less massive form, but the probability of this is, I fear, growing fainter. It may be that the future prosperity of the district lies in the Morfa-du portion of the deposits, which has I see 6 ft. of solid bluestone.

It cannot be said that the coal trade of North Wales has materially improved, and the country is overrun with wagons from North Staffordshire and Lancashire. The collieries of these districts now that trade is bad in their own neighbourhood sell their coals here at almost any price to keep their works going. The supplies of coal for the Montgomeryshire and Cardiganshire lead mines being chiefly derived from South Wales. The brick, tile, and sanitary ware trades are good, the works being well supplied with orders.

Besides the Van Railway, about the amount of whose dividend there is now a dispute, two other local railways, supported by mineral traffic, have declared dividends. The first of these is the Corris Railway Company, whose line connects the slate quarries of Corris with the Cambrian Railway, which, after providing for the debenture interest, has just declared a dividend of 8 per cent. per annum for the last half-year. The other is the Snailbeach Railway Company, whose recently constructed line connects the Snailbeach



Lead Mine with the Shrewsbury and Minsterley Railway near Pontesbury. Notwithstanding that this mine is not at present doing as well as formerly the railway has earned a 3 per cent. dividend. The Mid-Wales Railway is suffering from the depression in the South Wales trade. It has long seemed to me that the Cambrian Railway to Llanidloes, the Mid-Wales to Brecon, and the Brecon and Neath Railways want adaptation and efficient organisation for through traffic from the North to the central spots and sites of industry in South Wales. As it is, although adapted to form a main route, they are but a succession of local lines. The Mid-Wales shows a decrease on the year's traffic of about 6000, the Cambrian Railway an increase of 14287.

The interest taken by readers of the Journal in the lead mines of my district is evidenced by the fact that there are no less than eight letters relating to them in last week's issue, besides as many notes and paragraphs. Amongst them I notice one from Mr. Fraser, agent the British silver-lead mining property, where there is said to be silver-lead ore, blende, slates, and paving sets altogether. I am only afraid less this happy combination of products should impair the distinctive value of each. Could not Mr. Fraser cause a weekly report like these from the other mines to be sent detailing progress and giving quantities and particulars of letting, levels, stopes, and shafts?

I observe that the promoters of the Llangwden and Nantiago Mines, old miners as they are, cannot get out of the habit of borrowing from the reputation of an established mine; so in addition to East Van, Central Van, and West Van, we have now a Lower Van. I have always pointed out that this trading on the reputation of another mine is a mistake. Besides, what are any of the circumferential Vans and other leading mines doing now, and what are they likely to do? Let each mine stand on its own merits.

#### REPORT FROM DERBYSHIRE AND YORKSHIRE.

Aug. 29.—A steady business has been done at the principal lead mines, as there are comparatively few of any magnitude. The chief of these belong to Mr. Wass, who has some powerful machinery, which is now being turned to a profit. Only a comparatively moderate tonnage of ironstone is being raised in the county, a great deal of dependence being placed on the supplies received from Northamptonshire, which are brought over the Midland at a moderate cost. There has been an improvement in the state of the Iron Trade, and sales have been more easily effected, but prices have as yet not materially improved, but they have certainly a rising tendency. The foundries are working very favourably, more especially in pipes, whilst Bessemer rails keep the works at Driffield in a high state of activity. A little more is doing in coal, and the business with the Metropolis is well maintained, but there has been no change in the prices.

In Sheffield improvement in several branches continues, but there are a few departments that are still very quiet. The makers of armour plates are doing a good trade for our own Government, with some few orders from abroad. Bessemer steel is still being largely produced, and there has been no falling off in the demand for rails, of which the shipments are extensive, whilst prices are advancing. Not so much is being done in iron rails, but for general railway material there is a fair business being done. Engine makers and merchants are far from busy. Cast steel is in but comparatively moderate request, and a good many articles which were formerly made from it are now produced in Bessemer. In South Yorkshire there has been no change of any importance, the collieries in some instances working rather better, making as much as five days a week. Steam coal has moved off rather better of late, shipments from Grimsby having increased, but prices have not improved, being lower than for several years past.

#### REPORT FROM MONMOUTHSHIRE AND SOUTH WALES.

Aug. 29.—At two railway meetings held during the week the shareholders have had good cause for congratulation. The Taff Vale proprietors received the very handsome distribution of 10 per cent. and a bonus of 2 per cent. per annum for the last half-year. The Taff Vale is essentially a mineral line, and this continued prosperity is due mainly to the large quantities of coal, &c., taken to Cardiff. The Monmouthshire Railway and Canal Company's meeting was held to-day at Newport, Lord Tredegar presiding. Little interest was taken in the proceedings, the shareholders being certain of the 6½ per cent. per annum dividend now guaranteed by the Great Western, who lease the line. Hopes were expressed that the opening of the new line to the Rhondda Valley may materially benefit the Monmouthshire traffic. About the usual dividends have been paid by the water and gas companies, and the Newport Tramway Company has already become a fair investment. Against the small dividend it paid in the preceding year this year the shareholders receive 5½ per cent. This change is due to reducing the fare one-half—from 2d. to 1d.

The Iron Trade continues to show slight signs of improvement, though it is true that at several of the works iron rail orders are scarce. More of these are shortly expected, but it is hardly likely we shall ever see the railway iron demand anything like it was some years ago. The reason for this is obvious enough—steel is now the article most sought after. By-the-by, rumours are still current with regard to Cyfartha, and a few days will suffice to assure us of their value or otherwise. One satisfactory thing is the better demand for merchant iron, and fair shipments of bars have recently taken place. Pig iron has not materially changed; clearances of iron during the last few days have been small. At the steelworks there is a little more activity exhibited, but for rails, although in better demand than iron, prices are very low. It is now definitely stated that the Landore (Siemens's) Steel Company have entered into a contract with Government for the supply of ship-plates for the Navy. The Tin-Plate Trade is a little more active this week, and cases are reported in which slightly enhanced quotations have been obtained.

The coal industry has not quite maintained its position this week, for during the last few days there has been a little falling off in shipments, while from some quarters complaints are heard as to the downward tendency of prices. Still, there is a large output, and the demand for steam qualities has been well maintained. At most pits there is more employment, and the enhanced activity at several works has somewhat increased the local consumption. As usual, the house coal department is somewhat dull, but for best anthracite there is a quiet though steady demand. Patent fuel continues dull. Freights are a trifle better.

CYPRUS.—The attractiveness of Cyprus as a field for profitable enterprise connected with mining was mentioned in the letter of a correspondent writing from Lemasol, published in the Journal of Aug. 24, special reference being made to the copper deposits near Baffo; but it appears that the mineral riches of the island are by no means limited to this district. A very handsome and large scale map of Cyprus has just been published by Mr. James Wyld, the well-known geographer, of Charing Cross, and a careful inspection of it shows that fully half of the island may be classed as metaliferous. The general topographical map is accompanied by a small sketch map, showing the position of Cyprus with regard to the neighbouring continents; by a geological map showing the more prominent rock formations; and by an agricultural map showing the extent of surface under cultivation, and the character of the produce. The principal ports and roadsteads are likewise shown upon an enlarged scale, so that great facilities will be afforded for judging of the commercial prospects of any engineering project which may be brought under the notice of capitalists. With regard to copper mines, it appears that Baffo is not the most important so far as has yet been ascertained, although it is no doubt worthy of development. The greatest copper ore workings seem to be those about Tamassos, where Mr. Wyld indicates copper mines favourably placed upon a river, and which have been extensively wrought for more than five miles, taking a line nearly north and south. The whole of the north-western portion of the island is, moreover, studded with indications of mines, many of which have

laid idle for a considerable period. A little to the north-east of Chrysosko, and close to the bay of the same name, there are some ancient copper mines; whilst at Djinhousa, on a parallel range of hills almost due east from these, are other copper mines, which probably formed part of the same region of workings as those indicated a few miles to the southward. On the other side of the island in the Limasol district, copper mines are also found, and near the south-western point, about Baffo, to which reference has already been made, is the Cyprus diamond district. Indeed, mines and remains of mines are to be seen everywhere, and a careful study of the map, which is executed in the best possible style, shows such minute details, that anyone taking an interest in the island can readily judge whether or not any given locality is favourably situated for development.

#### THE SCOTCH MINING SHARE MARKET—WEEKLY REPORT AND LIST OF PRICES.

During the past week the markets have been stagnant, positively beyond comparison. The usual fortnightly settlement helped to restrict transactions, but, so far, there is no great increase for the next account (Sept. 13) just commenced. Particulars of the continuation business done are given below. A renewal of activity seems now to be anticipated in the closing months of the year, as there are improving reports from all branches of trade, but the full effects of the unusually favourable harvest must be felt before any improvement becomes of much consequence, and business generally prosperous.

In shares of iron and coal companies, prices are only partially responding to the expected revival in these trades. This is not to be wondered at, though in South Wales there are prospects of the ironworks soon being reopened on an extensive scale, the position in the West of Scotland is so depressed that it has been resolved to give notice of a reduction of 10 per cent. in the wages of all ironworkers. At the Sandwell Park Colliery meeting, on Tuesday, a dividend of 5 per cent. was declared. Henry Briggs, Son, and Company, recommended a dividend of 7s. 6d. on the A shares, and 4s. 10d. on the B shares. The Scottish Australian sales for June have been 20,057 tons, and for the half-year then ended 90,463 tons. The principal alteration this week has been an advance of 1d. per share on Nant-y-Glo and Blaitha (pref.), while Benhar, Bolekrow Vaughan, A, and Marbella, are each 5d. lower; Monkland, also Orma and Cleland, each 2s. Thomson, Stirling, and Company, offered. Andrew Knowles and Sons are at 92s. 6d. dis. Bilson and Crump, 50s. to 60s. Bolekrow Vaughan, A, 59 to 59½; and ditto B, 37½. Cardiff and Swansea, 25s. to 30s. Chapel House, 50s. to 60s. Chillington, 65s. to 75s. Charles Cammell and Co., 7½ dis. Ebbw Vale, 8½ to 9½. John Brown and Co., 10 dis. John Bagnall and Sons, 20s. to 25s. 6d. Muntz's Metal, 70s. prem. Nant-y-Glo and Blaitha (pref.), 24 to 25. Nerbudda, 17s. 6d. Newport Abercrombie, 92s. 6d. Pelsall, 11½ dis. Rhymney, 17½. Thorp's Gwaber Hall, 40s. West Cumberland, 8½. West Mostyn (pref.), 20s.

In shares of foreign copper and lead companies there is a small improvement of 3s. 9d. on Tharsis, and 2s. 6d. on Rio Tinto 5 per cent., but Rio Tinto 5 per cent. reduced to approximate to the London quotations. The stock of copper of all brands in London is now so large, 6039 tons, that the Wallaroo Copper, who have for some time been producing it at a loss, view the situation as perfectly void of encouragement, and contemplate closing the mines or limiting the output. The New Quebrada has been gradually increasing its shipments of ore since January, when they were 240 tons, until now, when the superintendent announces that for the remainder of the year they will average 1000 tons per month. This is owing to the extension of the various levels. The July are averaged 14-69 per cent. The usual monthly advances are to be had from the Yorke Peninsula Mines, at which very encouraging progress is being made. They had on hand on June 30 last 303 tons of 17 per cent. ore, and 730 tons of dredge ore of 5 per cent. A shipment of 150 tons being made. Alamillos are at 1¼ to 1½; Cape, 20½ to 30½; Llanes, 4½; Rio Tinto 5 per cent., 8½; Yorke Peninsula, 5s.

In home mines the market is almost already a thing of the past, vanishing in fact. Notwithstanding the further depression in the prices of tin shares that the last drop of 2d. in the standards for ore has caused, buyers do not appear to have confidence yet that prices will react. The last sale of Glasgow Caradon copper are on the 22nd inst., computed 205 tons, which realised 745s. 12s., or an average of 72s. 10d. per ton. The sales in August for some years back have been—In 1877, 250 tons, at 84s. 8d.; in 1876, 250 tons, at 78s. 4d.; in 1875, 240 tons, at 118s. 1d.; and in 1874, 235 tons, at 92s. But it is hoped the results will improve correspondingly. Bolekrow Vaughan, A, 59 to 59½; Bolekrow Vaughan, B, 37½; Bolekrow Vaughan, C, 37½; Bolekrow Vaughan, D, 37½; Bolekrow Vaughan, E, 37½; Bolekrow Vaughan, F, 37½; Bolekrow Vaughan, G, 37½; Bolekrow Vaughan, H, 37½; Bolekrow Vaughan, I, 37½; Bolekrow Vaughan, J, 37½; Bolekrow Vaughan, K, 37½; Bolekrow Vaughan, L, 37½; Bolekrow Vaughan, M, 37½; Bolekrow Vaughan, N, 37½; Bolekrow Vaughan, O, 37½; Bolekrow Vaughan, P, 37½; Bolekrow Vaughan, Q, 37½; Bolekrow Vaughan, R, 37½; Bolekrow Vaughan, S, 37½; Bolekrow Vaughan, T, 37½; Bolekrow Vaughan, U, 37½; Bolekrow Vaughan, V, 37½; Bolekrow Vaughan, W, 37½; Bolekrow Vaughan, X, 37½; Bolekrow Vaughan, Y, 37½; Bolekrow Vaughan, Z, 37½.

In shares of gold and silver mines Richmonds declined to 8, but have since recovered, and stand 5s. higher on the week. The run published is \$68,000. Frontino and Bolivia are attracting more attention, owing to the capital way the Silencio Mine is opening up. In June 95 tons from it yielded 9 ozs. 9 dwts. per ton on an average. The company's accounts for that month show the total produce was 421oz., and profit 1717s. The other working statements announced have been—Antioquia, loss for June 25s.; St. John del Rey, profit for July 5900s.; Port Phillip, profit for the month ending Aug. 14, 1878. New Zealand Kapanga farmer, as stopping has been commenced in the most promising parts of the property. The produce of Don Pedro North del Rey for the first division of August has been 5000 ozs. These shares are now dealt in, with 18s. paid, the call of 2s. per share being due yesterday, and should produce 9295s. of capital. The announcement of the completion of the new works at the Pestarena United Mines, commenced in 1872, should direct more dealings to the shares. The prospects are of a fairly good character, as even last year a profit of 2219s. was made, and when they are thus enabled to develop the mine fully the results will improve correspondingly. Bolekrow Vaughan, A, 59 to 59½; Bolekrow Vaughan, B, 37½; Bolekrow Vaughan, C, 37½; Bolekrow Vaughan, D, 37½; Bolekrow Vaughan, E, 37½; Bolekrow Vaughan, F, 37½; Bolekrow Vaughan, G, 37½; Bolekrow Vaughan, H, 37½; Bolekrow Vaughan, I, 37½; Bolekrow Vaughan, J, 37½; Bolekrow Vaughan, K, 37½; Bolekrow Vaughan, L, 37½; Bolekrow Vaughan, M, 37½; Bolekrow Vaughan, N, 37½; Bolekrow Vaughan, O, 37½; Bolekrow Vaughan, P, 37½; Bolekrow Vaughan, Q, 37½; Bolekrow Vaughan, R, 37½; Bolekrow Vaughan, S, 37½; Bolekrow Vaughan, T, 37½; Bolekrow Vaughan, U, 37½; Bolekrow Vaughan, V, 37½; Bolekrow Vaughan, W, 37½; Bolekrow Vaughan, X, 37½; Bolekrow Vaughan, Y, 37½; Bolekrow Vaughan, Z, 37½.

In shares of oil companies Young's Paraffin are steady, but Uphall are 2s. 6d. lower. Price's Patent Candle, 10½. In shares of miscellaneous companies business is at a stand. The meeting of Palmer's Shipbuilding Company is to be held on Sept. 20. Birmingham and Midland Counties Val de Travers are at 10s. to 20s.; Native Guano, 80s.; and Palmer's, B, 12 dis. Prices of wagon companies' shares are—Birmingham, 1½; Gloucestershire, 7½; Metropolitan, 60s. prem.; Midland, 15½; Railway Carriage, 5; Union, 10½; Rolling Stock, 30s. prem.; and United States Rolling Stock, 13½. There has been an improved demand for chemical companies' shares, owing to the satisfactory report issued by Lawes' Company, which will be found below, as well as a dividend of 2½ per cent. announced by Langdale's. If the farmers just get a few years' favourable crops, as they are having this season, all companies of this class are likely to do very well. Langdale's are at 95s.; Lawes', 8½ to 9½; and Newcastle, 41s. 3d.

On contingency day (Tuesday) the following were the rates of continuation current—Contingency: 9d. on Benhar Coal; 1d. on Glasgow Caradon; 1½d. on Port Washington; 1d. on Huntington; 3d. on Marbella; 1½d. on Monkland; 1d. on Richmond; 1½d. on Backwaite; 1½d. on Tharsis; 1½d. on Uphall Oil; 1s. 6d. on Bolekrow Vaughan, A; 1s. 6d. on Bolekrow Vaughan, B; 1s. 6d. on Bolekrow Vaughan, C; 1s. 6d. on Bolekrow Vaughan, D; 1s. 6d. on Bolekrow Vaughan, E; 1s. 6d. on Bolekrow Vaughan, F; 1s. 6d. on Bolekrow Vaughan, G; 1s. 6d. on Bolekrow Vaughan, H; 1s. 6d. on Bolekrow Vaughan, I; 1s. 6d. on Bolekrow Vaughan, J; 1s. 6d. on Bolekrow Vaughan, K; 1s. 6d. on Bolekrow Vaughan, L; 1s. 6d. on Bolekrow Vaughan, M; 1s. 6d. on Bolekrow Vaughan, N; 1s. 6d. on Bolekrow Vaughan, O; 1s. 6d. on Bolekrow Vaughan, P; 1s. 6d. on Bolekrow Vaughan, Q; 1s. 6d. on Bolekrow Vaughan, R; 1s. 6d. on Bolekrow Vaughan, S; 1s. 6d. on Bolekrow Vaughan, T; 1s. 6d. on Bolekrow Vaughan, U; 1s. 6d. on Bolekrow Vaughan, V; 1s. 6d. on Bolekrow Vaughan, W; 1s. 6d. on Bolekrow Vaughan, X; 1s. 6d. on Bolekrow Vaughan, Y; 1s. 6d. on Bolekrow Vaughan, Z.

STARFORTH LANE COLLIERY.—This property is situated near Chesterfield, and contains the Derbyshire bright, or deep soft coal. A company is at present arranging to lease it, and freehold land adjacent to it, in order to sink to the deep hard coal, so as to work the two seams conjointly. The amount of capital required will not be very heavy, and excellent profits should be realised if it is a fact that the colliery gave over 4000, profit in 1877, as stated. The colliery is to be taken over in October. There is a valuable plant already on it, and during the last four years 21,747. has been expended in developing the property. The freehold to be acquired along with it forms the only access to the railway, for a very large area of coal and a large income is expected to be derived from royalties to be charged for way leave through this piece of land.

NORTH MOLTON MINING COMPANY (Limited).—The reconstruction of the Bampfylde Mining Company (Limited), in liquidation, has been carried into effect, and the new company registered under the above title. The office has been removed to London, and the management is considered efficient. By this arrangement Bampfylde shareholders are entitled to an equal number of shares in the new company of 12 c. sh. for 5s., and only 2s. 6d. of this is payable at once. The mines continue to look exceedingly well, and as we may now consider adequate means have been secured to develop them there can be little doubt this will now become a successful undertaking.

HUNTINGTON COPPER AND SULPHUR COMPANY (Limited).—As advised last week, the shareholders in this company should give their proxies for the meeting on Sept. 3 to the present directors. Since then, however, another circular has been issued, exposing from its point of view the most strenuous endeavours that are being made by the original directors to secure votes, so as to get the lawsuit withdrawn, to which they stand as defendants. If the means employed are correctly stated their case must, indeed, be desperate. It must always be kept in view that the present directors carried through a most successful lawsuit, whereby they secured for the company a sum a little short of 12,000l., and that their management generally entitles them to the support of every independent shareholder in the course they have now deemed it best to pursue.

LAWES'S CHEMICAL MANURE COMPANY (Limited).—The sixth annual report of this company and statement of accounts for the year ended June 30 has just been issued. The sales have increased by 22,612t., being now 343,662t., and the profits of 36,629s. show a corresponding increase. The balance from last year is 12,264l. From the amount available for distribution, 10,000l. is placed to credit of reserve account for the redemption of debentures, and a dividend of 9 per cent. recommended on the ordinary and preference shares, leaving 13,432t. to carry forward. During the past year the works at Barking Creek (where the company possesses a large area of freehold land, with extensive frontage on the River Thames) have been extended so as to concentrate the manufacturing. Owing to the over prices of manure and building materials the directors considered it a good time to carry out some improvements upon the most recent principles, from which a considerable saving will be effected in the cost of landing and storing materials, as well as in the cost of manufacture. The new plant consists of a high level jetty, furnished

with hydraulic cranes, and connected by tramways, 10 horizontal mills, and all necessary apparatus for mixing, the whole being driven by a compound horizontal engine, with two Galloway boilers. The directors state they expect the continued hearty co-operation of the shareholders in extending the use of the manures.

ARENDAL MINING AND SMELTING COMPANY.—A report has recently been issued by two of the directors of this company who had visited the mines and other property of the company in Norway to ascertain at the same time if any of the machinery at the Bratzberg Copper Mine could be utilised at their own mines. They found some of this machinery doing its work fairly, but are of opinion that they can erect machinery of less cost, which will also be more efficient. From the other remarks in the report it appears that the Arendal Company has three properties—Mesel, Skyttur, and Boylstead. Nothing is being done at the first named. The other two are being fully developed with the result that great improvements are taking place in the various lodes as they progress. They are more than a mile apart, and as the workings are on a good lode at both mines, the prospects are considered very superior. It is no doubt a fair specimen of the management of mines held by shareholders out of the country where the mines are, that the two directors found that the smelting mills and a wharf on the lake in connection with the works were still being retained by the vendors. This was, however, satisfactorily arranged. It is expected the railway will be ready for traffic by the middle of September, and an extension of it was ordered, which will make the total length nearly 4 miles. The directors consider the property will be paying a good dividend in less than 12 months, with every prospect of a large increase as the mines get more fully opened up. It should also be stated that a silver-lead lode has just been discovered in the district, which is at present being explored, and if found valuable will be secured for the Arendal Company.

J. GRANT MACLEAN, Stock and Share Broker, Post Office Buildings, Stirling, August 29.

#### Original Correspondence.

##### THE RICHMOND MINE.

SIR,—I shall feel obliged if you will kindly grant me space in your valuable Journal for some remarks in reference to the Richmond Mining Company. In the first place, permit me to thank you on behalf of a considerable section of Richmond shareholders for the judicious editorial remarks in your last number on the position of this company when you published Mr. Bayliss's attack upon the title and upon the mine generally. These remarks, and a very imperfect circular which I issued, prevented the mischief Mr. Bayliss's statements were only too clearly calculated to create. In another attack, made in one of his apparently interminable circulars received this morning, Mr. Bayliss having sold his shares, in order, possibly, to enable him to "re-invest" at lower prices, he prominently quotes a statement of Mr. Brereton, that this gentleman had "reliable information" that the "Richmond bonanza was nearly exhausted, and that unless new ore bodies were developed there would not be enough ore to keep the furnaces running over this month;" and adds Mr. Bayliss, with that innocent candour which distinguishes him, "we have since received a cablegram from Mr. Probert stating that the furnaces will be shut down for repairs on the 31st inst." Possibly people less innocent than Mr. Bayliss might draw a somewhat unfavourable inference from this last remark. They might infer that the furnaces were not stopped for repairs, but for want of ore, and that the mine is exhausted, and upon this inference sacrifice their shares for the benefit of "re-investors." Since I have, with many friends, taken substantial interest in the Richmond Company it has been stated to me from time to time by disinterested people who, like Mr. Brereton, had perfectly "reliable information," that "the mine was worked out," that "the money and bullion in hand was all a sham," that "the American banker would never remit," that "the bottom was out of the mine," that "the mine was flooded," (the "bottom being out," and the "flooding," I may mention, occurred at the same time, but this is a detail), that "the furnaces were in danger of being washed away," "the refinery ditto," and finally, on the assertion of the highest of these most veracious and reliable authorities, we are told we have no mine at all, but only a "shadow." I need hardly say that all these statements were equally truthful—that is to say, the mine has steadily kept up a high rate of production, the bullion appears to have been real, the banker has remitted a trifle of 100,000l. or so, and there is a still larger amount of undivided profit in hand; the mine has still a bottom of ore; the mine has not been flooded, the furnaces and refinery still exist; and, upon the authority of the highest counsel, there is no cause for uneasiness in regard to the title, which, failing success in any other way to damage the property, is now being questioned, in order to induce shareholders to part with their shares.

As the report that the furnaces were stopped for want of ore was most industriously circulated, and, further, it was alleged that the furnaces would not re-start this year, explicit information was demanded by cable both as to the mine and the re-starting of the furnaces. The shareholders will be glad to have later information than that given them by Mr. Brereton and now repeated by his friend—Mr. Bayliss. Under date of the 26th inst. the reply cablegram states—"Mine all right; furnaces re-start October"—the repairs apparently requiring a month's time.

This is the gist of what I wish to say in this letter, and I think it of some importance that it should appear at the same time as Mr. Bayliss's last circular, if you publish it.

As regards the attack on myself I will not enter into this, beyond that: the leading shareholders take a different view on the points of our respective circulars and, at a special general meeting, which the directors will be requested by a most influential section of the shareholders to convene without delay, he will learn what those who hitherto trusted in him think of his behaviour in this matter. Mr. Bayliss doubts my believing in his quixotic behaviour. Frankly I may state that I do disbelieve in quixotism in business matters, and I shall have some questions to put to Mr. Bayliss at the meeting, as well as to some other gentlemen associated with him, to which I hope to get satisfactory answers. It is simply humbug for Mr. Bayliss to say he wished to give the shareholders the benefit of his quixotic decision, when not confining himself to issuing such a circular to shareholders only (this one would have thought sufficient) he carefully issues it on a Friday night, and sends it to the Press, so that the gang of speculators who have been attacking these shares had the information simultaneously with the London shareholders, and before many country shareholders, and shareholders do not act with the same rapidity as speculators.

If Mr. Bayliss had only had the true interests of the shareholders at heart he would above all things have carefully avoided doing anything to prejudice our position, but he does not appear to consider this; indeed, it is difficult to know what he does consider. First he decides on sundry personal grounds, and because the mine was a "shadow" to dispose of his Richmond holding, and then on learning that the directors are doing something we know not what he proposes to re-invest, and come to the meeting a brand new shareholder with a large stake. Mr. Bayliss must be very simple if he imagines that largely re-investing in Richmonds at the expense of unfortunate holders will strengthen his position; it will be quite the reverse.

As to his not receiving my circular, I do not see that it was a question of either "courage, fairness, or courtesy," but Mr. Bayliss likes to be hysterical (see the last sentence of paragraph beginning "I have done what is 'right' and 'just'"). As a simple matter of fact, I sent the list of shareholders out to be addressed, and in the pressure for time the names of Mr. Bayliss and his brother appear to have been passed over, although I am assured that circulars were sent to all the names on the list. There could be no object in my not sending Mr. Bayliss a circular which he was sure to see almost immediately from other sources. LAWRENCE T. McEWEEN, St. Stephen's Chambers, Westminster, Aug. 29.

[For remainder of Original Correspondence see this day's Supplement.]

Works published at the office of THE MINING JOURNAL: CONVERSATION ON MINES, &c., BETWEEN "A FATHER AND SON." By W. HOPKINS, Colliery Manager. 3s.; by post, 3s. 3d. THE BEST MINING MACHINERY—PRIZE ESSAY. By RALPH GOLDSMITH. 1s. NEW GUIDE TO THE IRON TRADE. By JAMES ROSE. Price 3s. 6d.; by post, 3s. 9d. JOINT STOCK COMPANIES, AND HOW TO FORM THEM. By THOMAS TAPPING. 1s. TREATISE ON IRON METALLURGY. By S. B. ROBERTS. 21s. 6d. RISE AND PROGRESS OF MINING IN DEVONSHIRE. By G. CROWDER. 1s.



## FROSTERLEY LEAD MINING COMPANY.

In the prevailing dearth of mining enterprise we have pleasure in calling attention to this company, which has secured a property having some excellent antecedents of its own, and situated in the immediate neighbourhood of the mines of Messrs. Beaumont and of the London Lead Company's Mines, all of which have been celebrated for half a century or more as the most lucrative lead mines in the country. Indeed, the profits of two or three mines only belonging to the Beaumont family have realised for them a princely fortune, and there are other mines in the vicinity which, though of less magnitude, have returned to the shareholders unusually high dividends. The whole locality is one distinguished by unfavourable success, and though it has long yielded immense wealth to the proprietors, yet nowhere does it show signs of exhaustion.

The undoubted resources of these Northern lead mines are not sufficiently appreciated in the London market—a phenomenon which it would not be easy to explain did we not know that the present proprietors are generally very well content with their property, and are not disposed to sell. The many people of the North keep the secret of their successes, and cling to their holdings; thus it is that there are so few dealings in this market, and yet the produce of this Northern district places it at the head of all the lead producing districts of England, as the following, taken from the Board of Trade Returns, will show:—

PRODUCE OF THE COUNTIES OF DURHAM AND NORTHUMBRIA.			
Years.	Lead ore, Tons.	Lead, 13,769 9	Silver—ozs.
1873	18,821 10	13,769 9	47,882
1874	15,659 9	13,889 12	70,336
1875	22,304 4	15,525 7	70,191
1876	23,285 9	16,730 33	74,095

In the Dryburnside Estate, which has been secured by this company, the lodes are workable by "day drifts," independently of any pumping machinery, leaving 1000 ft. of back—that is to say, high and dry ground. Some years since operations were carried on at two points, and although only on a limited scale, the yield was considerable; both the workings were mere surface trials, but the lead raised established the great productive power of the lode.

Mr. George Henwood, than whom no better authority could be desired, says of this mine:—"The principal lodes are two in number, their parallel direction being about 15° east of north. Only one has been worked (some 60 years since), and large quantities of lead ore were obtained therefrom, and sold at a great profit, with the latest appliances, lead ore being then sold at one-third less than its present value. . . . The works that I suggest may be accomplished in a comparatively short time, which will ensure the realisation of a great dividend-paying mine. The geological conditions are most approvable, being in perfect consonance with those of the great mining properties by which the grant is surrounded, and which comprise some of the richest lead mines in Europe." The company is brought out under good auspices, with a capital of 10,000l., in shares of 1l. each.

## THE WEEK.

SATURDAY, AUGUST 24.—A very large business was done again in Egyptian Unifed. The previous evening the closing was at 55½, but this morning the first recorded transaction was at 58½; from this there was an advance to 59½; at the finish the stock was quoted 57½ to 58. The improvement in the Preference was 1l. per cent.—to 75. Turkish Fives closed at 13½. Carn Brea, 30 to 32. Eberhard, 4 to 4½. Richmond, 8 to 8½. Frothing, 3 to 3½. East Van, 4½ to 5. Van, 15 to 16. Great Laxey, 13½ to 14. Rookhope, 3½ to 4. Glenroy, 3½ to 4. MONDAY.—The highest point recorded to day in Unifed was 55½, when sales followed, the price at the close not being better than 57. On the other hand, the preference improved to 76. The fear of heavy contingents ruling on Wednesday next sent down Brighton, A, to 14½; and Dover, A, to 12½; Chatham Preference closing 91 to 91½; and the ordinary at 26½ to 27. Don Pedro, 10s. to 12s. (18s. paid); Port Phillip, 10s. to 12s. 6d.; Parys Mountain, 6s. to 8s.; Patey Bridge, 4½; Flagstaff, 3½ to 4.

TUESDAY.—New Zealand Kapanga met with some enquiry at 1½, the agent having telegraphed that operations at the mine had commenced, and that the prospects were good. Tinroft, 4 to 6. Devon Consols, 2½ to 3½. West Tolpu, 5 to 5½. A rally seems probable in Turks. The settlement will be adjusted tomorrow, when speculation will be again let loose. The Fives are now 13½; the 1873 loan 15½; and that of 1869, 18½.

WEDNESDAY.—Contingents were very heavy. Eight per cent., and in some cases even more, was paid on Turks and Egyptians, but this did not prevent a rise in each. The Unifed rose to 58, and the Preference to 77. Turkish Fives improved to 14, and the Treasury Bonds advanced 2 to 27. On Brighton A and Dover A operators for a rise had to pay 5l. to 6l. on each thousand stock open, but in each case there was a rise more than sufficient to repay the outlay. The former advanced 1 to 4½, and the latter 1½ to 12s.

THURSDAY.—No change was made to day in the Bank rate. After being firm, and prices higher than yesterday, a decline set in, and at the last quotations showed a fall. United States Rolling Stock, 12½ to 13; Credit, A, 1 to 1½. The shares of the London Steamboat Company, with 5l. paid, can now be got at 8½. Royal Aquarium Preference, 5½ to 5¾. The shares of the Canada Land Company are quoted 87 to 90; there now remains 1l. paid on each of these shares. Natal Land, 4 to 4½; Newfoundland Land, 1½ to 1¾; Odessa Waterworks, A, 5½ to 5¾; City of St. Petersburg, 3 to 4. National Discount shares may be had at 10½. General Credits at 7, and Hudson Bay at 11. Among Bank shares London and Yorkshire, Central Bank, and Mercantile Bank of the River Plate are worth looking up.

FRIDAY (Opening).—Egyptian stocks are much depressed; the Unifed is down to 56½, and the Preference 75½. Turkish Fives can be got at 13½, being 3½ lower. Russian show no change (84½ to 85). In mines, Eberhard shares are weak (3½ to 4½), while New Zealand Kapanga have improved to 1½, 1¾. Van and Great Laxey are each quoted 18 to 19, without anything being done. Rookhope, 10s. to 12s.; Parys Mountain, 6s. to 7s.; Glenroy, 3½ to 4s. These three are pretty well unsaleable. —Two o'clock.—The markets have rallied considerably. Unifed now 58½ to 57, and the Preference 75½ to 76½. In railways, Chatham (pref.) are up to 92½, and District to 83½. Caledonian, 11½ to 12; Turkish Fives, 13½ to 14½; Richmond, 8½ to 9½; Chatham, 4½ to 5; Don Pedro, 10s. to 12s. (18s. paid); Javali, 9s. to 11s.; Chicago, 10s. to 11s. —Four o'clock.—The recovery shown at two o'clock has been maintained. Colorado, 4½ to 4¾; East Van, 3½ to 4; Roman Gravel, 7½ to 7¾; Tankerville, 3½ to 3¾; Chapel House Colliery, 3½ to 4; Newport Abercrombie, 3½ to 4½; Bilson and Crump, 2 to 3.

FERDINAND R. KIRK.

LEAD ORES.			
Date.	Mines.	Tons.	Price per ton.
Aug. 23—Mina.	58	210 10 6	Sheldon, Bush, and Co.
—ditto	10	9 6	ditto
—ditto	10	7 6	Walker, Parker, and Co.
—ditto	20	10 7 6	ditto
—ditto	9	10 5 0	ditto
26—Red Rock	40	8 16 0	Nevill, Druce, and Co.
27—Central Foxdale	60	13 1 6	Adam Eytton.
—Great East Foxdale	20	9 10 0	ditto
—Hultafall	20	12 7 6	Sheldon, Bush, and Co.

BLENDE.			
Date.	Mines.	Tons.	Price per ton.
Aug. 23—Mina.	58	2 18 0	Kenrick and Son.
—ditto	50	3 18 0	ditto
—ditto	21	3 17 6	ditto
—ditto	15	4 0 0	Dilwyn and Co.
—ditto	15	4 0 0	Vivian and Sons.
—ditto	15	4 0 0	Dilwyn and Co.
—ditto	15	4 0 0	Vivian and Sons.
—ditto	12½	3 14 6	Richardson and Co.
—ditto	12½	3 14 6	Vivian and Sons.

COPPER ORES.							
Sampled Aug. 14, and sold at Swansea, Aug. 27.							
Mines.	Tons.	Produce.	Price.	Mines.	Tons.	Produce.	Price.
Union	127	8½	£4 14 0	Aljustrel	67	4½	£2 3 6
ditto	127	8½	4 13 6	ditto	67	4½	2 3 6
ditto	127	8½	4 14 0	Virneberg	39	4½	12 10 6
ditto	111	12½	7 2 0	ditto	74	14½	8 2 6
ditto	102	13½	7 12 0	ditto	16	10½	5 17 0
ditto	69	9½	5 3 0	Bogalho	50	27½	15 14 6
ditto	69	9½	5 3 6	ditto	42	27½	15 14 6
Spanish Ore	123	6½	2 6 0	Knockmahon	68	3	1 2 6
ditto	122	6½	2 4 6	Copper Ore.	3	8½	4 0 6
Aljustrel	68	4½	2 1 6				
TOTAL PRODUCE.							
Union Ore	772	£4269	15 0	Bogalho Ore	92	£1446	14 0
Spanish Ore	245	587	8 6	Knockmahon	68	76	10 0
Aljustrel Ore	292	429	4 0	Copper Ore	3	12	1 6
Virneberg Ore	129	1183	6 6				

COMPANIES BY WHOM THE ORES WERE PURCHASED.			
Name.	Tons.	Amount.	
Copper Mines' Company	299½	£ 1,527 19 9	
P. Grenfell and Sons	187	634 17 0	
Nevill, Druce, and Co.	192½	274 3 2	
Williams, Foster, and Co.	127	2,235 19 11	
Mason and Elkington	127	696 19 11	
Charles Lambert and Co.	192½	1,761 14 8	
Landore Copper Company	216	1,084 6 0	
Total	1511	£ 7,974 19 6	

TOTALS AND AVERAGES.			
Whole sale	21 cwt.	Produce.	Price.
1511	9 13-16	£5 5 6	10s. 8d.
			£78 4 0

MR. TIMOTHY HUGHES,  
MINING AGENT AND SHAREDEALER,  
59, SEEL STREET, LIVERPOOL.  
Reliable information given respecting Welsh and Manx Mines.

A UNITED STATES PATENT HAS BEEN GRANTED TO MR. HENRY SEWELL, M.E., for the REDUCTION or ELIMINATION OF SULPHUR FROM NATIVE SULPHUR ORES, without Fuel, Water, or Iron. These furnaces are made of common stone, costing \$200 each, and having a capacity of 500 tons of ore, at one time. They last many years. Five of them are now being worked at one time by day, and the other by night; Salt Lake City, Utah Territory, July 17, 1878.

In the Court of the Vice-Warden of the Stannaries.  
Stannaries of Devon.

IN the MATTER of the COMPANIES ACT, 1862, and of the FRANK MILLS MINING COMPANY.—By an Order, made by His Honor the Vice-Warden of the Stannaries, in the said Matter, dated the 25th day of August instant, on the petition of James Pool and F. Pool, carrying on business at Copperhouse, Hayle, within the said Stannaries, as Merchants, under the style of "J. and F. Pool," claiming to be creditors of the said company, IT WAS ORDERED that the said Frank Mills Mining Company SHOULD BE WOUND UP by this Court under the provisions of the Companies Act, 1862.

HODGE, HOCKIN, AND MARRACK, Truro  
(Solicitors for the said Petitioners).

In the Court of the Vice-Warden of the Stannaries.  
Stannaries of Devon.

IN the MATTER of the COMPANIES ACT, 1862, and of the FRANK MILLS MINING COMPANY.—Notice is hereby given, that ALL CREDITORS of the above-named company are required, on or before the 14th day of September next, to SEND IN their NAMES and ADDRESSES, and the AMOUNTS and PARTICULARS of their SEVERAL CLAIMS, to JOHN HENRY HAMLEY, the Official Liquidator of the said company, addressed to him at the Stannaries Court Office, in Truro, within the said Stannaries.

FREDERICK MARSHALL, Registrar.  
Dated Registrar's Office, Truro, August 26, 1878.

In the Court of the Vice-Warden of the Stannaries.  
Stannaries of Devon.

IN the MATTER of the COMPANIES ACT, 1862, and of the FRANK MILLS MINING COMPANY.—The Vice-Warden has, by an Order made in the above Matter, bearing date the 25th day of August instant, APPOINTED JOHN HENRY HAMLEY, of Truro, within the said Stannaries, an Officer of the said Court, to be absolutely the OFFICIAL LIQUIDATOR OF THE ABOVE-NAMED COMPANY.

FREDERICK MARSHALL, Registrar.  
Dated Registrar's Office, Truro, August 26, 1878.

## In the High Court of Justice—Chancery Division.

## IN THE MATTER OF THE COMPANIES ACTS, 1862 AND 1867;

## AND IN THE

MATTER OF THE CAPE BRETON COMPANY (LIMITED).  
CAPE BRETON, NOVA SCOTIA.

THE CAPE BRETON RAILWAY, constructed five years ago, in fair working order, commencing at Lormay Junction and terminating at Sydney Harbour, where there is a strong, well built wooden pier, 583 ft. long by 43 ft., having four railway tracks, two turn-tables, and fire coal sheds on it, and affording facilities for the loading of three vessels at one time. The harbour of Sydney has long been well known and used both as a shipping port and a port of call. Also, the Line of Boundary from Lormay Junction to Louisburg Harbour, where there is a splendid pier, and when finished will be 640 ft. by 40 ft., with a depth of water all round of from 24 to 34 ft. The harbour is a very fine one, being easy of access and open all the year, together with the MACHINERY, PLANT, DWELLING HOUSES, OFFICES, MACHINE SHOPS, ENGINE HOUSES, and all other outbuildings. Also, the valuable FREEHOLD and long LEASEHOLD MINERAL PROPERTY, extending over an area of five square miles, with the COLLIERIES opened thereon, known as THE RESERVE, producing a very excellent quality of coal both for steam and domestic purposes, and containing about 7,465,985 tons. The mine can be got ready for work at a fortnight's notice, the full output capacity being 300 tons per day. The EMERY, producing a very good steam and domestic coal, which during the time it was in the market gained a high reputation, containing 3,966,564 tons. This mine can also be put in working order at a fortnight's notice, and can turn out 200 tons per day. Also, the LORWAY AREA (not yet worked), reported to contain 2,114,796 tons of excellent coal; together with all the appliances for mining, handling, and shipping coal at the two first-named mines on and under the surface.

MR. GEORGE TRIST (of the firm of NORTON, TRIST, WATNEY, and Co.) WILL SELL, BY AUCTION (with the approbation of Vice-Chancellor MALINS), at the Mart, London, on Friday, the 26th day of October next, the above described valuable

## COAL MINES AND RAILWAYS,

Together with all their appurtenances, first in One Lot, and if not so sold then in Three Lots, as follows:—

LOT 1.—THE RESERVE, EMERY, and LORWAY COAL MINES, together with all PLANT and MACHINERY.

LOT 2.—THE RAILWAY from LORWAY JUNCTION to SYDNEY, about 10 miles in length; the PIER at SYDNEY HARBOUR; and the PLANT and ROLLING STOCK and appurtenances thereto.

LOT 3.—THE RAILWAY from LORWAY JUNCTION to LOUISBURG, about 20 miles in length; the PIER at LOUISBURG; and the PLANT, ROLLING STOCK, &c.

Particulars, with plan, may be had of Messrs. NORTON, ROSE, NORTON, and BREWER, Solicitors, 24, Coleman-street, E.C., and 6, Victoria-street, Westminster; of MR. SAMUEL LOWELL PRICE, of 44, Gresham-street, London, E.C.; and of MR. FREDERICK WHITNEY, of No. 8, Old Jewry, London, E.C., the Joint Official Liquidators of the above company; and of Messrs. NORTON, TRIST, WATNEY, and Co., 62, Old Broad-street, London, E.C.

## COXHOE COLLIERY, NEAR FERRYHILL, DURHAM.

SALE OF ENGINES, BOILERS, PUMPS, COAL TUBS, OLD MATERIAL, &c.

MR. SIMON JOEL, favoured with instructions from the owners, in consequence of the Pits being abandoned, WILL SELL, BY AUCTION, without reserve, on Thursday, September 5th, the PLANT AND MATERIALS AT COXHOE COLLIERY.

INCLUDING—  
Underground HAULING ENGINE, pair of 20 in. cylinders, with drums, complete.  
Horizontal HAULING ENGINE, pair of 13 in. cylinders, with drums, complete.

TWO horizontal JACK ENGINES, 12 in. cylinders, with drums, complete.

High-pressure WINDING ENGINE, 32 in. cylinder, and drum.

High-pressure WINDING ENGINE, 28 in. cylinder, and drum.

Direct acting condensing PUMPING ENGINE, 52 in. cylinder, nearly new.

TWENTY cylindrical BOILERS, from 22 ft. to 40 ft. long, by 5 ft. to 6 ft. diameter, with fittings.

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Pulley wheels, old and new wire ropes, iron coal tubs, old rails and chains, scrap iron and metal, old brass, steam and water pipes, smiths' tools, donkey pumps, and a variety of useful articles used in extensive mining operations; also, the WHOLE of the MATERIALS on the Heapstead, &c.

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Sale at Twelve o'clock.

Arrangements have been made for a Special Train to leave Ferryhill for Coxhoe at 11.45 on the morning of sale.

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IMPORTANT SALE OF A VERY VALUABLE FIRE-BRICK AND FIRE-CLAY WORKS, with immediate possession, within 2½ miles of Calstock and the navigable River Tamar, and ¼ mile from the siding of the Cornwall Minerals Railways, and 7 miles from Tavistock.

MESSRS. ANDREW AND SON are instructed to OFFER FOR SALE, BY PUBLIC AUCTION, at the Bedford Hotel, Tavistock, on Wednesday, September 25, at Three P.M., subject to such conditions as will then be produced, and can be seen at the offices of the undermentioned solicitors seven days previous to the sale, in One or more Lots (as may be determined on the time of sale), ALL that VERY VALUABLE PROPERTY, with ENGINES and PLANT, now worked and known as the

## CALSTOCK FIRE-BRICK AND FIRE-CLAY WORKS COMPANY (LIMITED).

Extending over 23 acres of land, which is coppyhold of the Manor of Calstock.

The whole of the subsoil of the land is a bed of clay of excellent quality. The bricks and tiles manufactured by this company are well known as affording great resistance to frost and heat, and the fire-bricks are stated to be capable of standing a greater heat than the Stourbridge and other well known bricks, and are greatly in demand.

The whole of the kilns, flues, and drying sheds, which are substantially constructed, have been erected with a view of producing first-class bricks and tiles at the smallest possible cost.

The machinery, made especially for these works, and put in place partly by the well-known firm of Nicholls and Williams, Tavistock, is in capital working order, and capable of producing about 20,000 bricks per day; and the manager's house and offices, with weighing-machine, render the whole works very complete.

The situation of the property is very favourable for carrying out the manufacture of fire-bricks and tiles, as the distance from the navigable River Tamar is only 2½ miles.

Printed particulars and plans will shortly be published, and can be obtained of the Auctioneers, 5, Courtenay-street, Plymouth; of Messrs. KELLY and WOLFSTAN, Solicitors, Plymouth; or of Messrs. MAXWELL and WELDON, Solicitors, Dublin.—Dated July 23rd, 1878.

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The proprietors are prepared to allow two years' trial of the mines previous to purchasing.

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## GLAN CLWYD LEAD MINING COMPANY (LIMITED).

TO BE SOLD, BY TENDER, the ESTATE and INTEREST of the above company under an Indenture of Lease (of which about 25 years are unexpired) and in certain mines, &c., in or under certain lands and premises situate at Clegir Mawr and Bryn Hulen, in the parish of Gwyddelwern, in the county of Merioneth, containing in statute measure 241 A. 1 R. 3 P., or thereabouts. Together with the MACHINERY, PLANT, and other EFFECTS belonging to the company on the premises, including a 40 ft. WATER-WHEEL, with segment, &c., for working patent self-acting jiggers; a BLAKE'S (or Marsden's) STONE BREAKER, and every other appliance for economically carrying on the mines. The Derwen Station, on the Rhyl, Denbigh, and Corwen Railway, is within two miles of the mines.

The Liquidator does not bind himself to accept the highest or any tender. Sealed tenders, endorsed "Tender for Glan Clwyd Mines," &c., and addressed to Messrs. BRETT and CRAVEN, Solicitors, 3, Kennedy-street, Manchester, will be received at their office up to Twelve at noon on Tuesday, the 10th day of September, 1878.

Authority for examining the property can be gotten, an inspection of the lease had, and a print of the particulars, conditions of sale, and form of tender, with any further information, obtained from the Liquidator, Mr. C. E. WILSON, No. 6, Stone-wall-terrace, Cheetham Hill; or Messrs. BRETT and CRAVEN, Solicitors, No. 3, Kennedy-street, Manchester.

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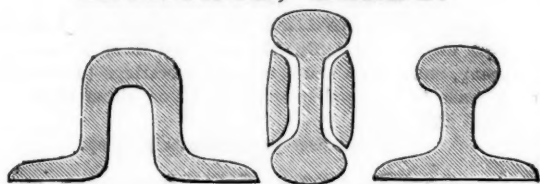
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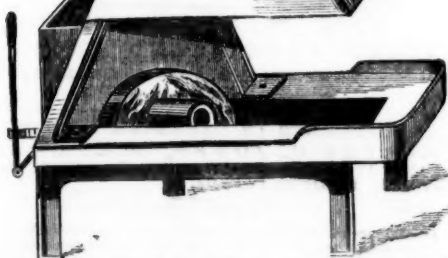
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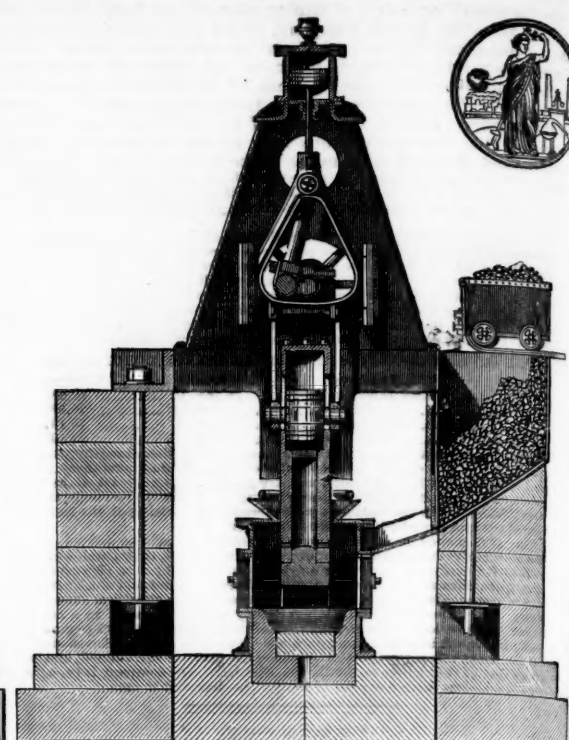
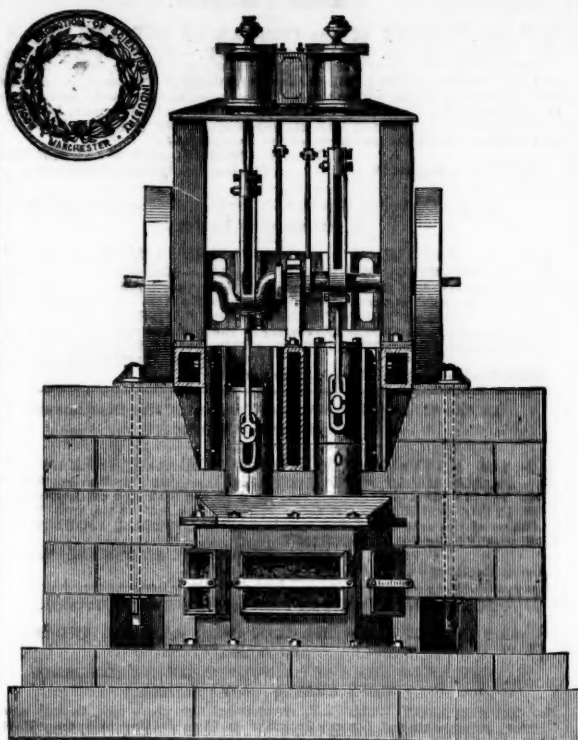
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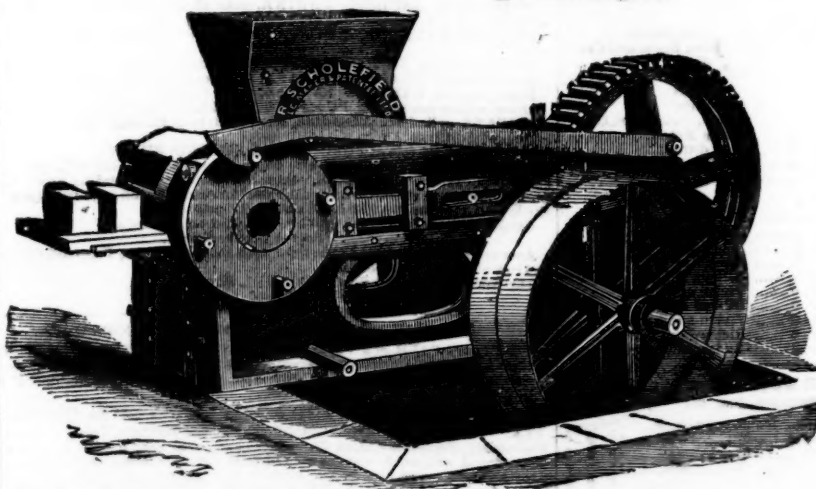
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Total cost of making 10,000 pressed bricks ... £15 0 0, or 2s. 6d. per 1000.

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## THE MINING SHARE LIST.

## BRITISH DIVIDEND MINES.

Shares.	Mines.	Paid.	Last wk.	Clos. pr.	Total divs.	Per sh.	Last wk.
4000	Brookwood, c. Buckfastleigh	1 10 0	1	3 1	3 10 0	0 2 0	Nov. 1878
2000	Bryn Alyn, c. Denbigh	10 0 0	—	—	0 7 0	0 7 0	Jan. 1877
10000	Caron, c. Cardigan	2 0 0	2 1/2	30 32	308 0 0	1 0 0	Feb. 1874
1000	Caru Brea, c. i. Illogan	38 7 6	33	30 32	1 9 0	0 2 0	Aug. 1876
4000	Cashwell, c. i. Cumbria	2 10 0	2 1/2	—	1 17 0	0 7 0	Jan. 1877
2450	Cook's Kitchen, c. i. Illogan	24 14 9	3 1/2	3 1/2	—	—	—
10240	Devon Cot. Consols, c. Tavistock	1 0 0	2 1/2	—	116 15 0	0 5 0	July 1877
4298	Dolcoath, c. i. Camborne	10 14 0	28	23 25	112 16 0	0 5 0	Aug. 1878
5000	East Black Oraig, c. i. Scotland	5 0 0	—	—	0 10 0	0 10 0	Feb. 1877
330	East Darron, c. i. Cardiganshire	32 0 0	—	—	235 10 0	1 0 0	Aug. 1876
8400	East Pool, c. i. Illogan	0 9 9	10	9 10	15 11 0	0 2 0	Aug. 1878
40000	Glasgow Carron, c. i. [20,000 £1 p., 10,000 15s. p.]	1 1/2	3 1/2	1 1/2	0 13 0	0 6 0	Aug. 1878
7500	Gorsedd and Merilyn Cons., c. i. Flint	4 0 0	19 1/2	19 1/2	23 10 0	0 8 0	July 1878
15000	Great Laxey, c. i. Lancashire	4 18 0	—	—	0 1 0	0 1 0	May 1876
618	Green Bar, c. i. Durham	0 6 0	1	3 1	1 18 0	0 3 0	Mar. 1878
50000	Grogwinion, c. i. Cardigan	2 0 0	3	2 1/2 x 3 d	0 14 0	0 10 0	Aug. 1878
9880	Gunnislake (Clitters), c. i. t.	5 8 0	2 1/2	2 1/2 x 3 d	0 13 0	0 1 0	Oct. 1876
60000	Holmbush, c. i. c. s. i. Calington	1 0 0	—	—	0 4 0	0 0 0	Sept. 1877
2900	Isle of Man, c. i. c. s. i. Calington	25 0 0	—	—	82 5 0	0 10 0	Feb. 1876
20000	Leadhills, c. i. Lancashire	6 0 0	3	2 1/2 x 3	0 15 0	0 3 0	Mar. 1878
400	Lisouen, c. i. Cardiganshire	18 15 0	60	55 60	586 10 0	1 0 0	May 1876
14000	Llanidloes, c. i. Montgomery	3 0 0	1 1/2	3 1/2	0 9 0	0 4 0	Nov. 1876
9000	Marke Valley, c. i. Linkinhorne	5 2 6	3 1/2	3 1/2	7 15 0	0 2 0	Jan. 1876
10000	Mellancorpe Copper, Hayle	2 0 0	4	3 1/2 x 4	0 5 0	0 3 0	Jan. 1878
9000	Minera Mining Co., c. i. Wrexham	5 0 0	12	8 10	67 13 0	0 2 0	May 1878
20000	Mining Co. of Ireland, c. i. c. i.	7 0 0	—	—	23 17 0	0 2 0	Jan. 1878
444	North Busy, c. i. Chacewater	3 9 6	—	—	1 10 0	0 0 0	July 1877
10288	North Hendre, c. i. Wales	2 10 0	—	—	2 7 0	0 0 0	June 1878
5000	Pedra-an-dre Cons., c. i. Redruth	0 8 6	—	—	0 3 0	0 2 0	Aug. 1874
5000	Pennalls, c. i. St. Agnes	3 2 6	1	3 1	3 18 0	0 2 0	July 1878
5000	Pennant, c. i. bar, North Wales	5 0 0	5	4 5	0 10 0	0 5 0	Mar. 1878
4500	Pontrhyth, c. i. c. s. i. Gwensau	2 0 0	2 1/2	3 1/2	0 2 0	0 8 0	Nov. 1876
18000	Prince Patrick, c. i. c. s. i. Holywell	1 0 0	2 1/2	1 1/2 x 1 1/2	0 14 0	0 1 0	Jan. 1876
10000	Red Rock, c. i. Cardigan	2 0 0	2 1/2	2 1/2	0 4 0	0 2 0	Jan. 1878
12000	Roman Gravel, c. i. Salop	7 10 0	8	7 1/2 x 7 1/2	7 15 0	0 5 0	Mar. 1878
512	South Cardigan, c. i. St. Cleer	1 5 0	60	60 60	742 10 0	1 0 0	Mar. 1878
5128	South Cardigan, c. i. St. Cleer	5 5 6	10 1/2	10 1/2	4 10 0	0 8 0	Aug. 1878
12000	St. Harmon, c. i. Montgomery	3 0 0	3 1/2	2 1/2 x 3 1/2	0 12 0	0 3 0	July 1878
10000	So. Fr. Patrick, c. i. c. s. i. (5000 sh. issued)	1 0 0	—	—	0 7 0	0 1 0	Oct. 1876
12000	Tankerville, c. i. Salop	6 0 0	4	3 1/2 x 4	4 17 0	0 5 0	Dec. 1876
4000	Tinoroff, c. i. c. s. i. Pool, Illogan	10 0 0	7 1/2	6 1/2	50 8 0	0 5 0	May 1877
15000	Van, c. i. Llanidloes	4 8 0	19 1/2	18 10	23 0 0	0 5 0	July 1878
3000	W. Chiverton, c. i. Perranzabuloe	12 10 0	7	5 1/2 x 6 1/2	55 10 0	0 10 0	Feb. 1878
1728	West Faldice, c. i. Day	10 0 0	—	—	1 19 0	0 4 0	July 1876
512	West Faldice, c. i. Redruth	65 10 0	62 1/2	60 52	31 0 0	1 5 0	Sept. 1878
2048	West Wheel Franchise, c. i. Illogan	28 8 9	2 1/2	2 1/2 x 2 1/2	3 12 0	0 5 0	Oct. 1876
600	West Wheel Franchise, c. i. Camborne	47 0 0	10	8 10	446 0 0	0 15 0	Apr. 1878
12000	West Wye Valley, c. i. Montgomery	3 0 0	3	2 1/2	0 12 0	0 3 0	Nov. 1877
1024	Wh. Eliza Consols, c. i. St. Austell	18 0 0	—	—	19 10 0	1 10 0	Aug. 1878
2148	Wheel Jane, c. i. Kea	2 13 0	2 1/2	3 1/2	8 5 0	0 6 0	July 1878
4948	Wheel Kitty, c. i. St. Agnes	8 4 8	3	1 1/2 x 2	11 19 0	0 2 0	Dec. 1874
25000	Wh. Newton, c. i. c. s. i. Calstock	1 0 0	—	—	0 8 0	0 4 0	Sept. 1878
80	Wheel Owsley, c. i. St. Just	161 5 0	35	26 27	522 10 0	0 4 0	Aug. 1878
3000	Wheel Pevor, c. i. Redruth	7 11 0	6 1/2	6 1/2	0 10 0	0 5 0	Aug. 1878
5000	Wheel Pevor, c. i. Redruth	0 5 0	—	—	0 4 0	0 1 0	July 1877
10000	Wye Valley, c. i. Montgomery	3 0 0	2	1 1/2 x 2	0 10 0	0 4 0	Oct. 1876

## FOREIGN DIVIDEND MINES.

Shares.	Mines.	Paid.	Last wk.	Clos. pr.	Total divs.	Per sh.	Last wk.
35500	Alamillos, c. i. Spain	2 0 0	1 1/2	1 1/2 x 1 1/2	1 19 3	0 1 0	April 1878
30000	Almaden and Tiroto Consols, c. i. t.	1 0 0	—	—	0 6 0	0 1 0	May 1876
30000	Australian, c. i. South Australia	7 7 6	1 1/2	1 1/2 x 1 1/2	0 19 0	0 1 0	Jan. 1877
10000	Battle Mountain, c. i. c. s. i. (2400 part pd.)	5 0 0	—	—	0 10 0	0 10 0	Nov. 1876
10000	Birdseye Creek, c. i. California	4 0 0	—	—	0 14 0	0 2 0	June 1874
20000	Cape Copper Mining, c. i. So. Africa	7 0 0	30	30 31	31 7 6	0 17 0	June 1878
34138	Cedar Creek, c. i. California	8 0 0	3 1/2	3 1/2	0 8 0	0 2 0	June 1878
85000	Cesena Sul. Co., c. i. Romagna, Italy	10 0 0	—	—	0 18 0	0 2 0	Aug. 1876
15000	Chicago, c. i. Utah	10 0 0	1	3 1	2 8 0	0 4 0	Nov. 1876
65000	Colorado United, c. i. Colorado	8 0 0	4	4 1/2	0 13 0	0 4 0	Jan. 1878
10000	Colpo, c. i. Chile (250 shares)	18 15 0	—	—	7 11 0	0 3 0	May 1877
100000	Don Pedro North of Rey	0 18 0	—	—	2 8 0	0 2 0	Mar. 1878
20000	Eberhardt & Aurora, c. i. Nevada	10 0 0	4 1/2	3 1/2 x 4 1/2	1 8 0	0 8 0	Dec. 1877
70000	English & Australian, c. i. St. Aust.	2 10 0	1 1/2	1 1/2 x 1 1/2	2 15 0	0 1 0	Mar. 1877
30000	Flagstaff, c. i. Utah	10 0 0	—	—	4 2 0	0 5 0	July 1878
25000	Fortuna, c. i. Spain	2 0 0	5	4 1/2	6 19 0	0 5 0	April 1878
50000	Frontino & Bolivia, c. i. New Gran.	2 0 0	3 1/2	2 1/2 x 3	0 1 0	0 1 0	June 1876
50000	Gold Run, c. i. t.	1 0 0	—	—	0 2 0	0 4 0	Oct. 1878
80000	Kapunda Mining Co. Australia	1 3 0	—	—	0 2 0	0 5 0	June 1878
20000	Last Chance, c. i. Utah	5 0 0	1 1/2	3 1	0 14 0	0 2 0	July 1878
15000	Linares, c. i. Spain	3 0 0	5 1/2	4 1/2 x 5 1/2	17 10 0	0 5 0	April 1878
65000	London and California, c. i. t.	2 0 0	—	—	0 1 0	0 1 0	July 1878
7887	Luisitana, c. i. Portugal (25 sh.)	3 10 0	—	—	1 11 0	0 1 0	Mar. 1878
5000	Mammoth Copperopolis, c. i. Cal.	10 0 0	—	—	0 8 0	0 5 0	Dec. 1878
6000	Mountain Chief, c. i. Utah	10 0 0	—	—	0 8 0	0 5 0	Dec. 1878
10000	Pontgibaud, c. i. France	20 0 0	30	28 30	25 19 0	0 11 0	June 1878
100000	Port Phillip, c. i. Cluene	1 0 0	—	—	1 10 0	0 1 0	Jan. 1878
54000	Richmond Consols, c. i. Nevada	5 0 0	8 1/2	8 1/2	6 1 0	0 10 0	Aug. 1878
40000	Santa Barbara, c. i. Brazil	0 10 0	1 1/2	1 1/2 x 1 1/2	0 4 0	0 1 0	April 1878
120000	Scottish Australian Mining Co.	1 0 0	—	—	15 per cent.	—	May 1878
80000	Scottish Austral. Mining Co., New	0 10 0	2	1 1/2	0 14 0	0 2 0	Oct. 1877
12500	Sierra Butte, c. i. California	2 0 0	2	1 1/2 x 1 1/2	0 14 0	0 2 0	Oct. 1877
60000	South Aurora, c. i. Nevada	8 0 0	—	—	0 14 0	0 2 0	Oct. 1877
253000	St. John del Rey (25 stock & multiples dealt in)	275 285	—	—	3 1/2 year 17 1/2 p. ct. for June 1874	—	—
20000	Tolima, c. i. So. America	5 0 0	—	—	0 11 0	0 6 0	May 1878
25000	Victoria (London), c. i. Australia	1 0 0	—	—	0 12 0	0 7 1/2	Jan. 1878
15000	Western Andes, c. i. New Granada	8 0 0	—	—	0 12 0	0 12 0	July 1878
91000	W. Prussian (5500 pref. sh. 101 pd)	10 0 0	11	10 1/2 x 11	1 2 0	0 4 0	July 1878

## NON-DIVIDEND FOREIGN MINES.

Shares.	Mines.	Paid.	Last wk.	Clos. pr.	Total divs.	Per sh.	Last wk.
5000	Angilla Phosphate, West Indies (4000 issued)	10 0 0	—	—	—	—	—
12000	Argentine, c. i. Argentina	5 0 0	—	—	—	—	—
3000	Bela Vista, c. i. Peru (210 shares)	10 0 0	—	—	—	—	—
4000	Blue Tent, c. i. California	5 0 0	—	—	—	—	—
49935	Chontales, c. i. c. s. i. Nicaragua	2 0 0	—	—	—	—	—
18000	Comdes de Chilli, c. i. t.	5 0 0	—	—	—	—	—
20000	English Australian, c. i. Victoria	1 0 0	—	—	—	—	—
50000	Excoeur, c. i. California	6 0 0	—	—	—	—	—
100000	Excoeur, c. i. California	1 0 0	—	—	—	—	—
40000	Holcombe Valley, c. i. California	1 0 0	—	—	—	—	—
8000	Hornachos, c. i. Spain	10 0 0	—	—	—	—	—
12000	Hultafelt, c. i. c. s. i. Orebro, Sweden	5 0 0	—	—	—	—	—
12000	Hunter Consolidated, c. i. Utah	10 0 0	—	—	—	—	—
20000	Imperial Brazilian Collieries, Brazil	5 0 0	—	—	—	—	—
100000	I. K. L., c. i. California	1 0 0	—	—	—	—	—
50000	Javali, c. i. Nicaragua	2 0 0	—	—	—	—	—
3500	La Manche, c. i. Newfoundland	10 0 0	—	—	—	—	—
12000	Lauca, c. i. c. s. i. Viscaya, Spain (25 shares)	1 15 0	—	—	—	—	—
75000	Malabar, c. i. Colombia (27185 issued)	1 0 0	—	—	—	—	—
40000	Malpaso, c. i. Colombia (7400 pref. shares, fully paid)	1 0 0	—	—	—	—	—
12000	Menzenberg, c. i. Honnef, Germany	5 8 0	—	—	—	—	—
4588	New Bensberg, c. i. Germany	5 0 0	—	—	—	—	—
80000	New Quebrada, c. i. Venezuela	5 0 0	—	—	—	—	—
20000	New Zealand Kapanza, c. i. Oromandel	5 0 0	—	—	—	—	—
3000	Oregon, c. i. Oregon, U.S. (preference shares)	4 0 0	—	—	—	—	—
50000	Panulillo, c. i. Chile (25000 debentures)	4 0 0	—	—	—	—	—
50000	Pastorena United, c. i. Italy	3 0 0	—	—	—	—	—
25000	Pitangu, c. i. Brazil (incl. 6000 sh. £1 fully paid)	0 5 0	—	—	—	—	—
25000	Placerias, c. i. g. g. California	2 0 0	—	—	—	—	—
50000	Provincia and New Rosario, c. i. Mexico	1 0 0	—	—	—	—	—
50000	Rica, c. i. Colombia (40000 issued)	1 0 0	—	—	—	—	—
2,211,000	Rio Tinto, c. i. c. s. i. Huelva, Spain	Stock	63	60 62	—	—	—
100000	Rosa Grande, c. i. Brazil (21 shares)	0 19 0	—	—	—	—	—
30040	Russia Copper, Orenburg and Ufa	10 0 0	—	—	—	—	—
25000	San Pedro, c. i. Chile	2 0 0	—	—	—	—	—
10000	Silver Plume, c. i. Colorado	1 0 0	—	—	—	—	—
30000	Tecoma, c. i. Utah	10 0 0	—	—	—	—	—
43174	United Mexican, c. i. Mexico	29 0 3	—	—	—	—	—
14000	Utah, c. i. Utah	5 0 0	—	—	—	—	—
10000	Vineberg, c. i. Rheinbreitbach, Germany (23 shares)	1 15 0	—	—	—	—	—
15000	Yorke Peninsula, c. i. South Australia	1 0 0	—	—	—	—	—
4000	Yorke Peninsula, c. i. South Australia	1 0 0	—	—	—	—	—

Have made calls since last dividend was paid.

## FOREIGN AND MISCELLANEOUS STOCKS, BONDS, LOANS, AND TRUSTS.

Argentine, 188
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